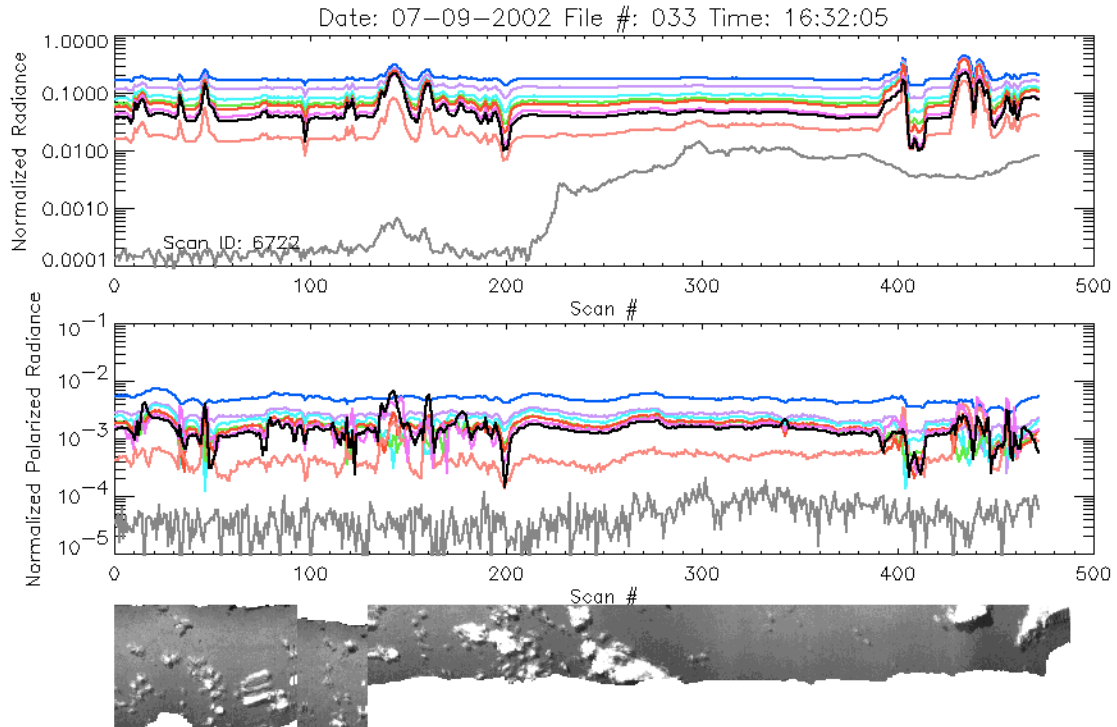


RSP Quick Look Data

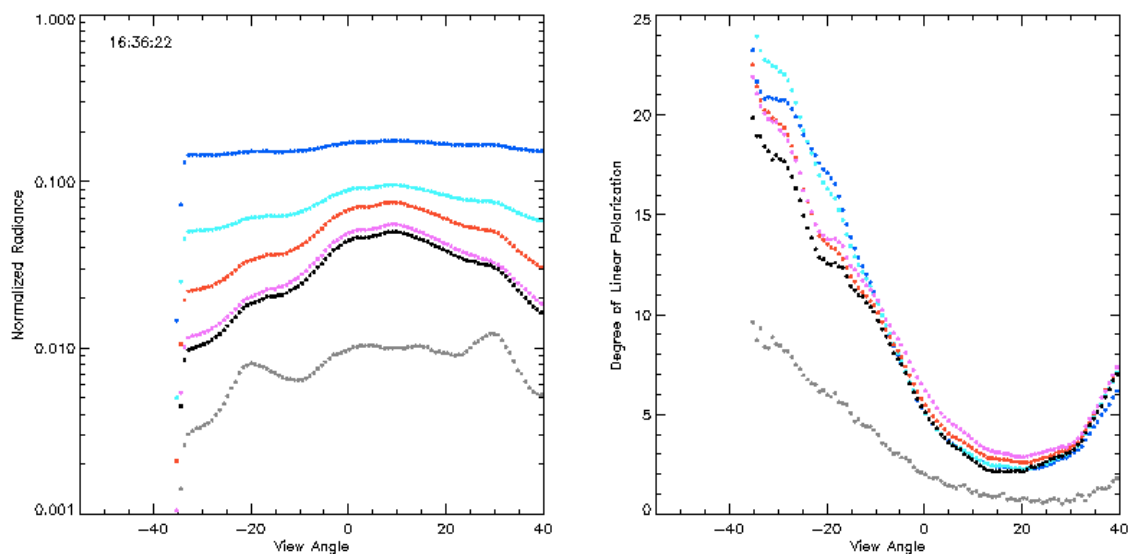
In the following figures the flight tracks of the Proteus aircraft are shown with the location at which an RSP file (###) started overlaid on the flight track. These figures of the flight tracks are followed by plots of the nadir radiance and polarized radiance observed by the RSP at 410, 470, 555, 670, 865, 960, 1590, 1880 and 2250 (blue, mauve, turquoise, green, red, orange, fuschia, grey and black respectively) from the given files. The normalized radiance is shown in the top panel and the normalized polarized radiance is shown in the middle panel. The image at the bottom of each RSP data file figure is constructed from overlapping strip images which are sequentially cross correlated with one another. This is used as a check on aircraft attitude and v/h among inhomogeneous clouds. The real and imaginary values of refractive index for water and ice for the SWIR bands are:

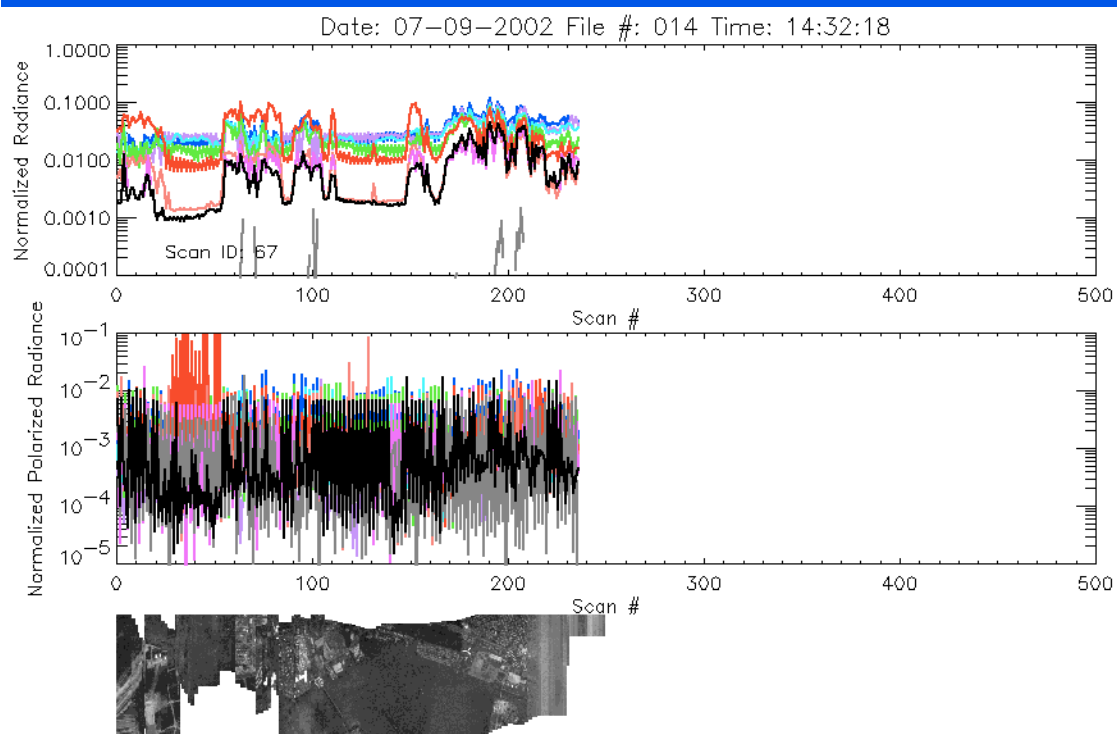
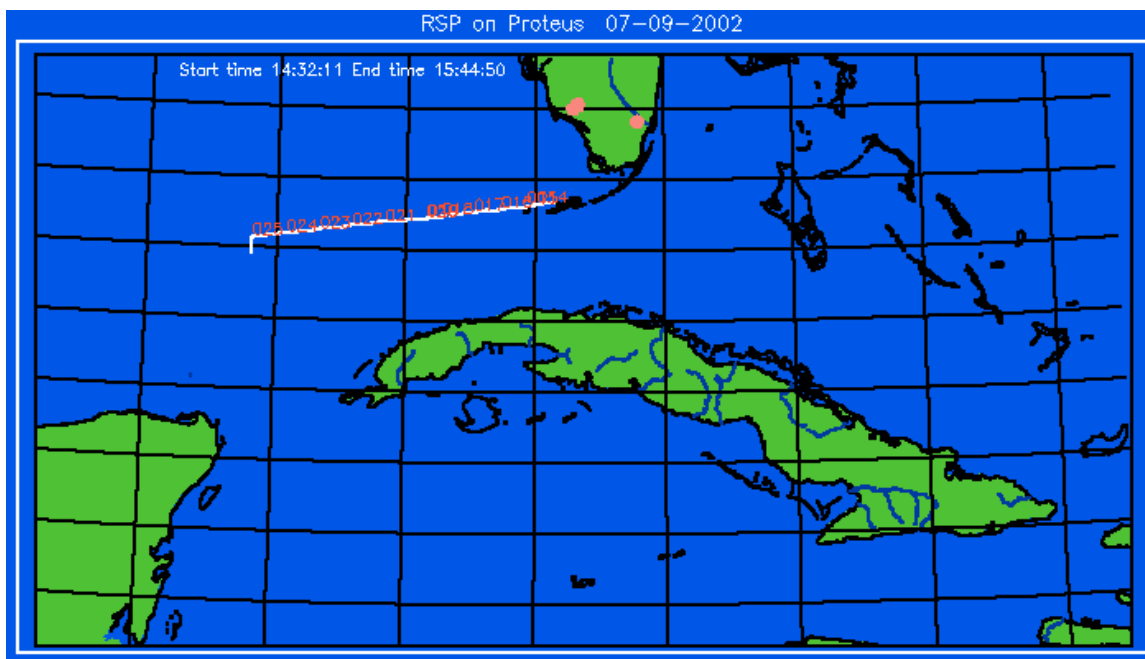
	NRIce	NIIce	NRWat	NIWat
1.58886	1.2895	0.000318	1.3182	0.000104
1.88447	1.2788	0.000317	1.3101	0.000880
2.26438	1.2562	0.000254	1.2875	0.000419

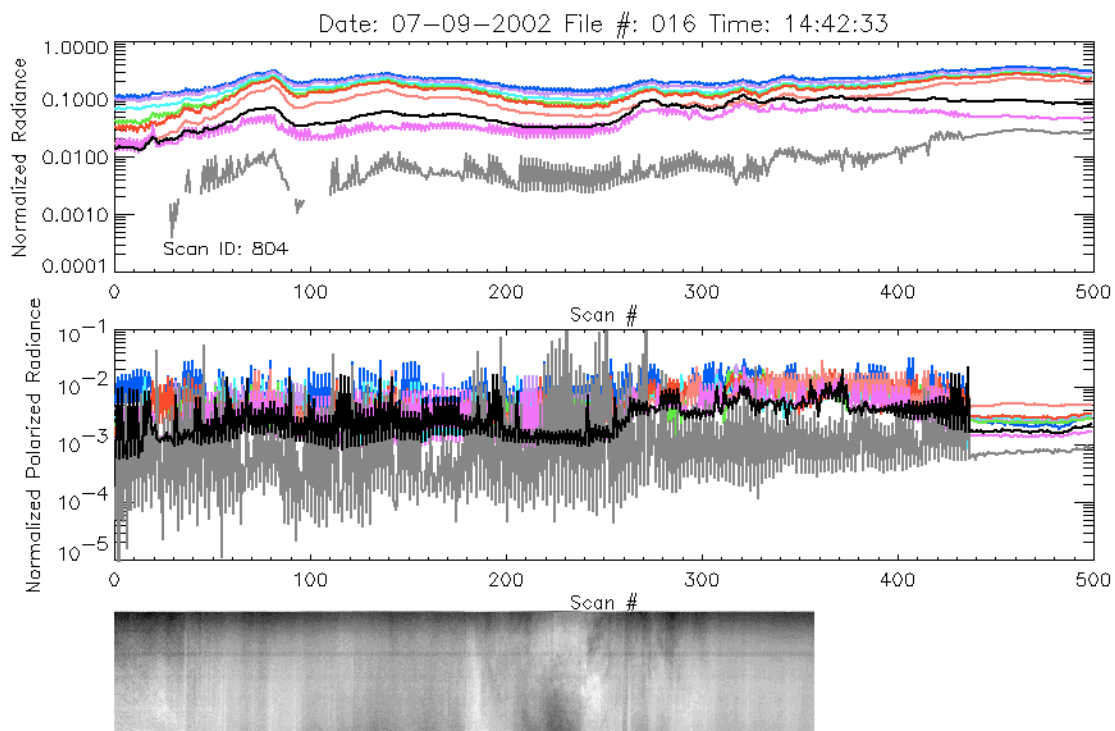
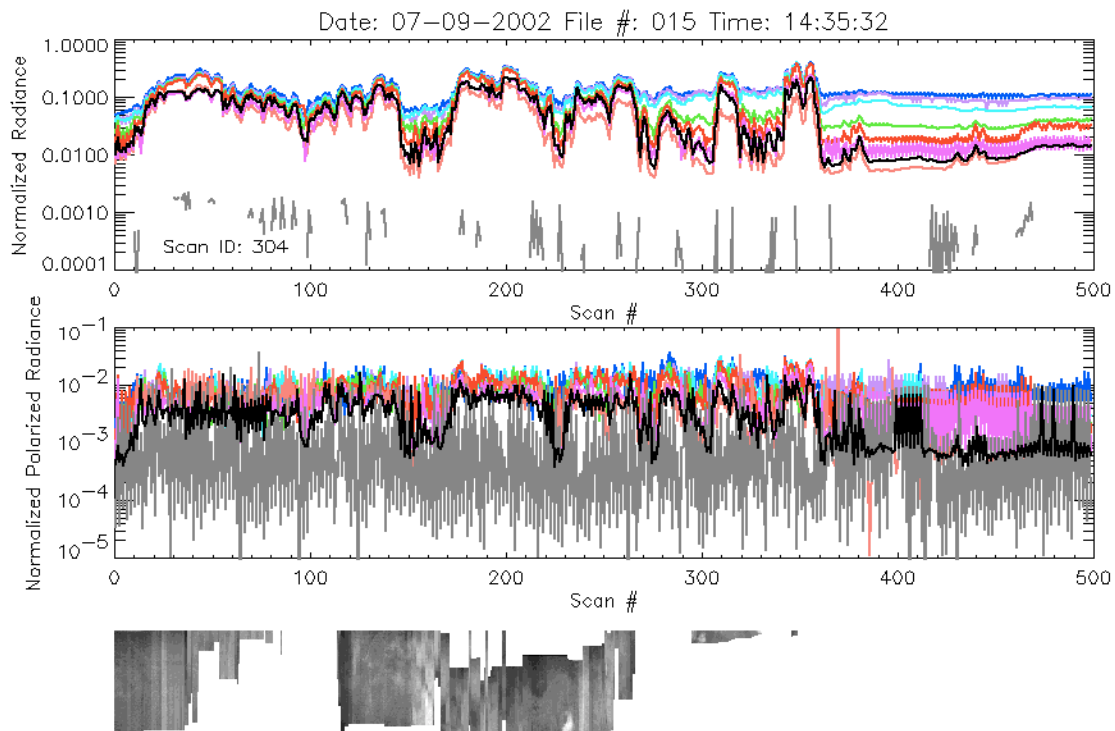
This means that typically for ice clouds the 1590 reflectance is lower than the 2250 nm reflectance. The RSP instrument scans along track and so for each nadir pixel shown in these figures there are also measurements over a view angle range of $+50^\circ$ to -70° (positive is in the direction of aircraft motion) every 0.8° . Shortly after Terra overpass (16:26) a very thin cirrus cloud was can be seen in the rapid increase in the 1880 nm radiances with little increase in the other radiances.

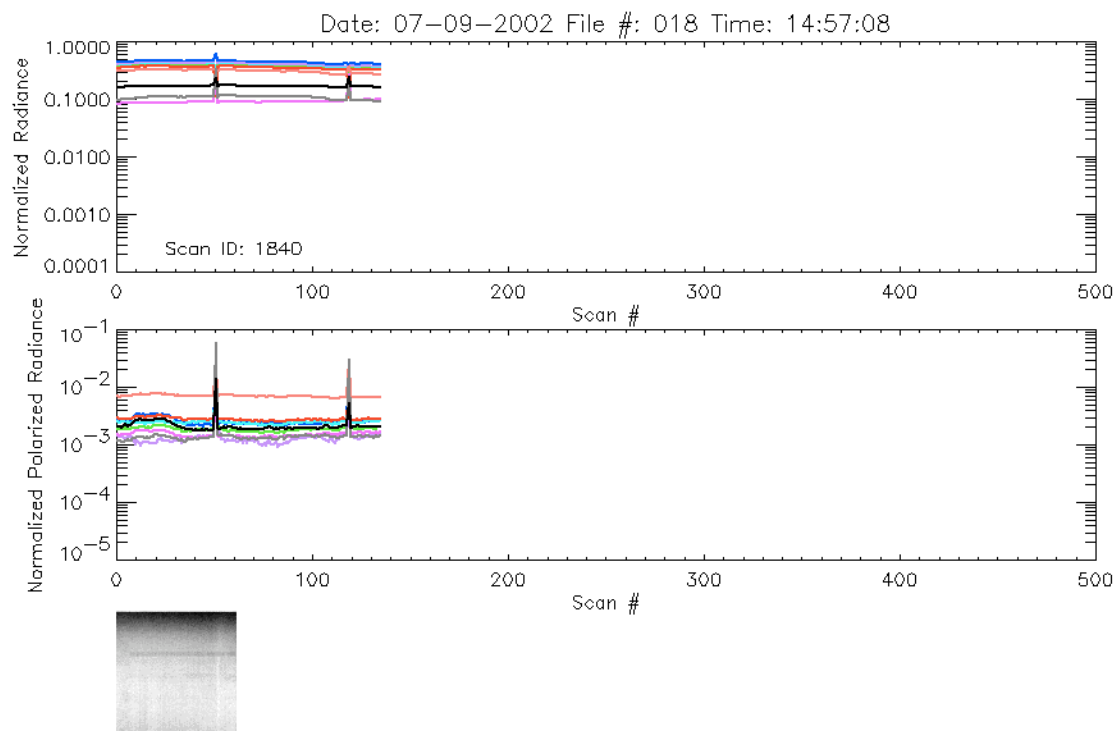
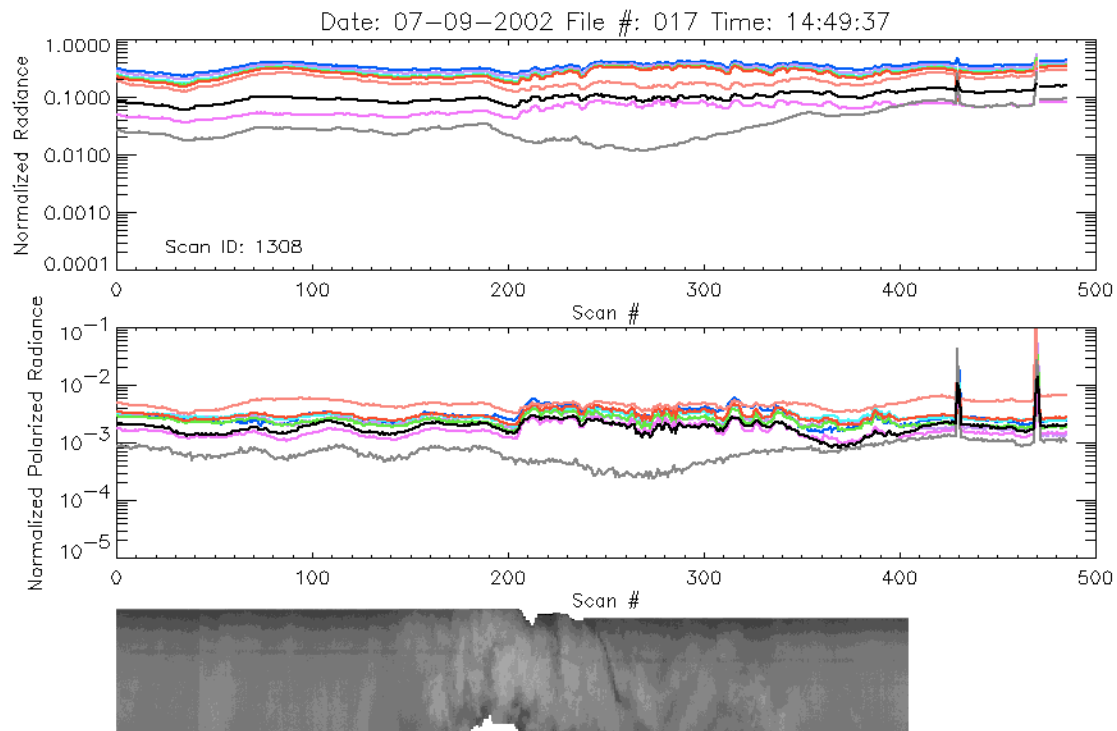


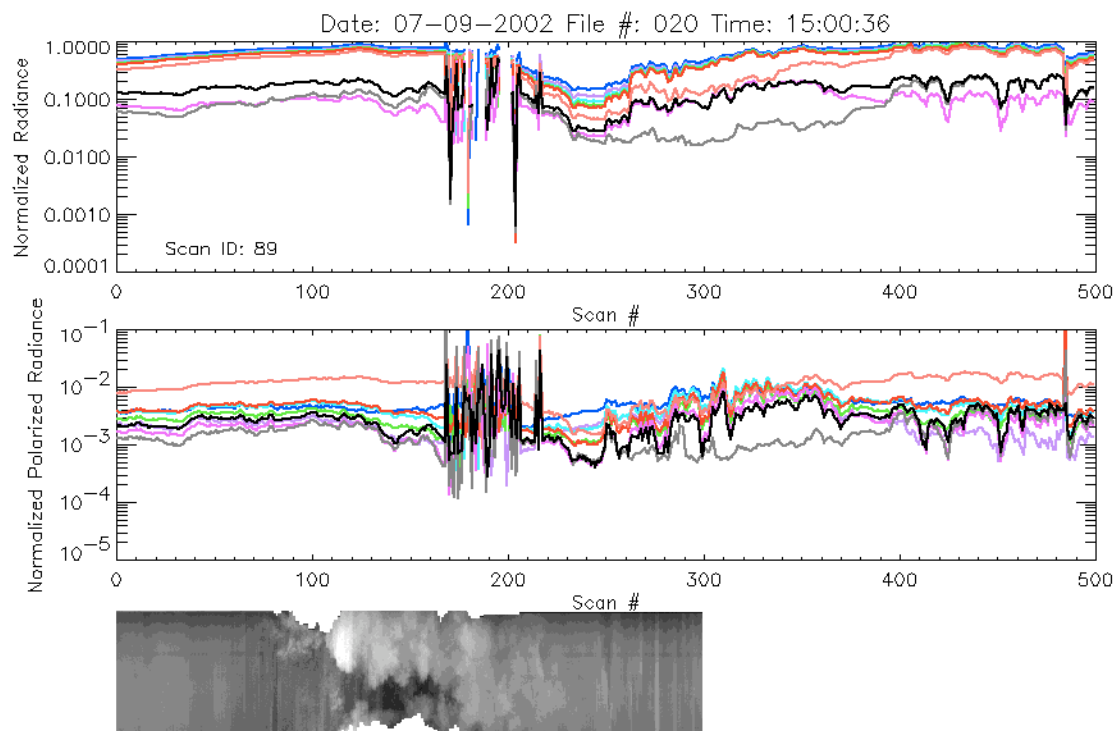
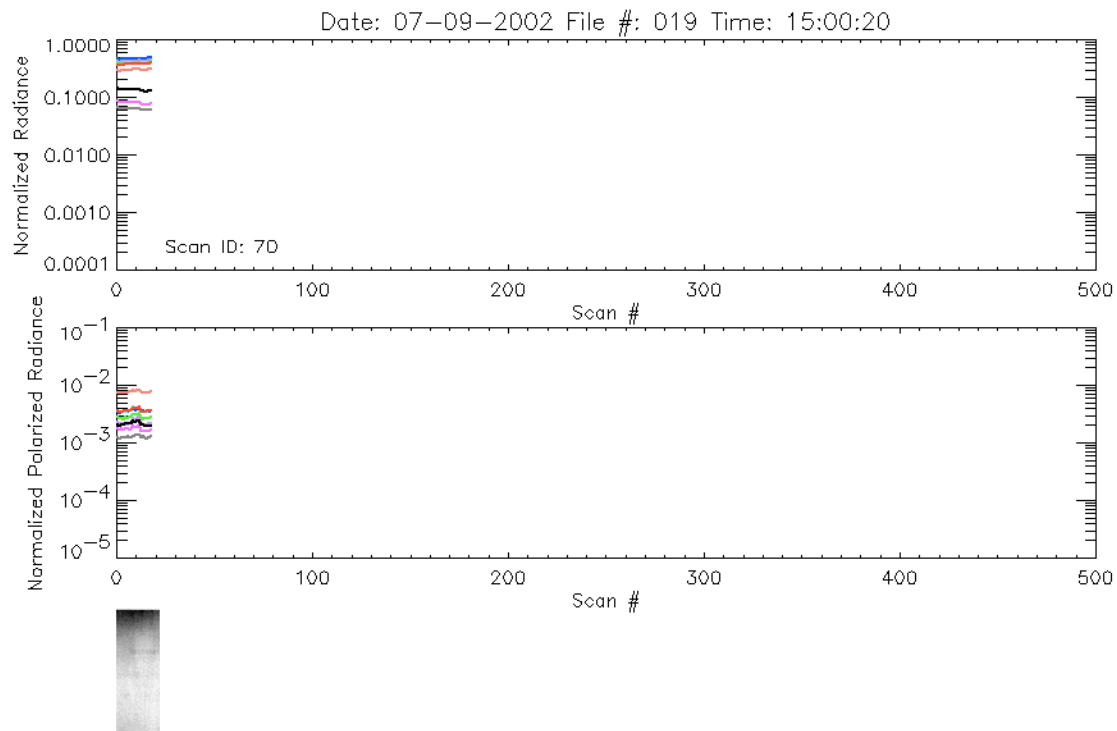
When we look at the multi-angle view from scan 320 it is apparent that the normalized radiance and degree of linear polarization observed in bands other than 1880 nm are dominated by sunglint and aerosols. The polarization at 1880 nm is much lower as one would expect for scattering from ice crystals. However the angular variation of the degree of linear polarization is smooth and shows no sign of a polarization inversions which suggests the ice is not in the form of pristine crystals, or indeed recognizably crystalline. This angular variation of polarization is produced by fractal particles, but can also be produced by any particles with highly irregular shapes.

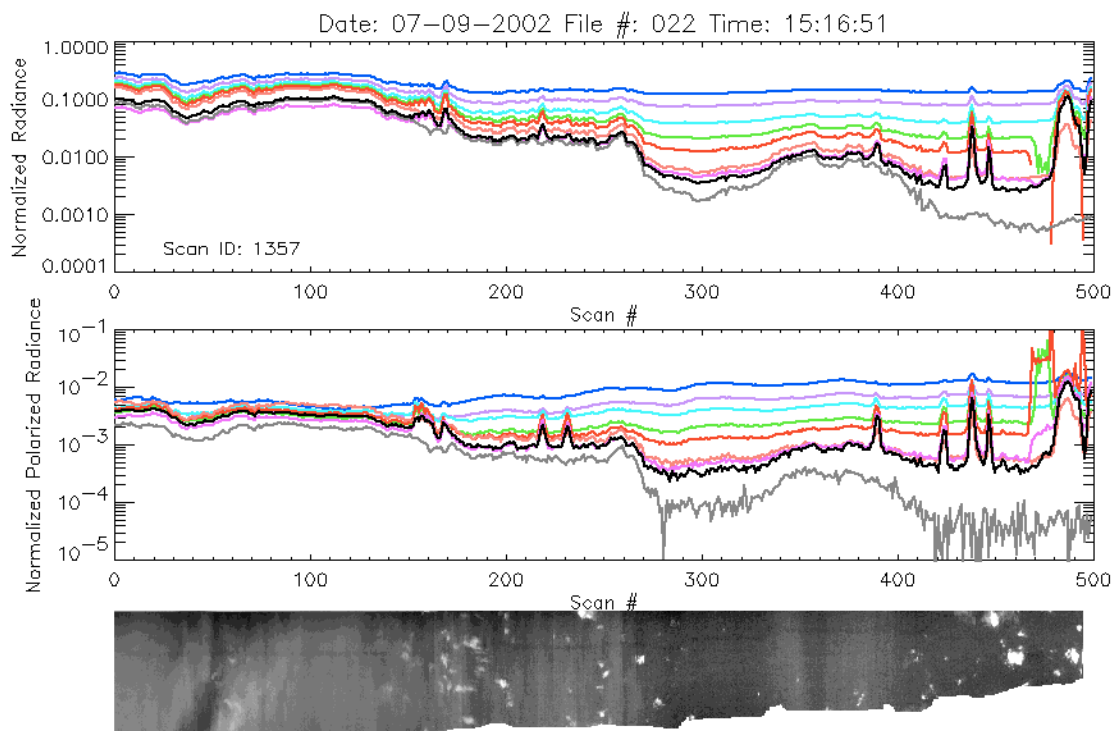
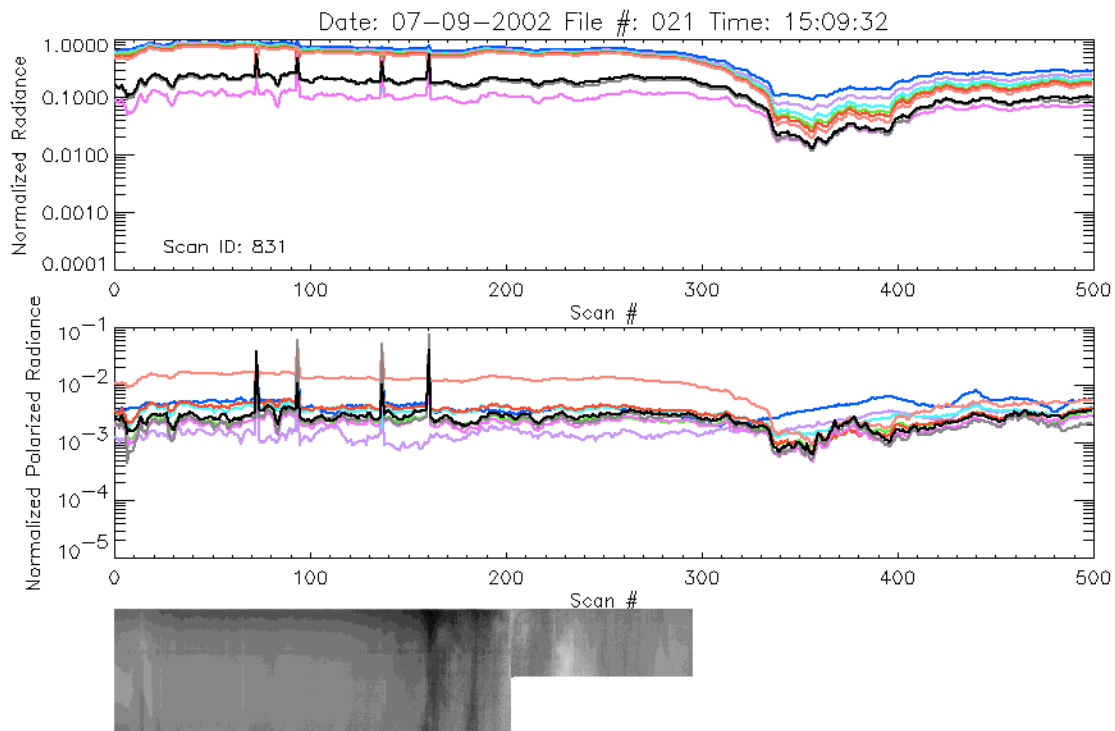


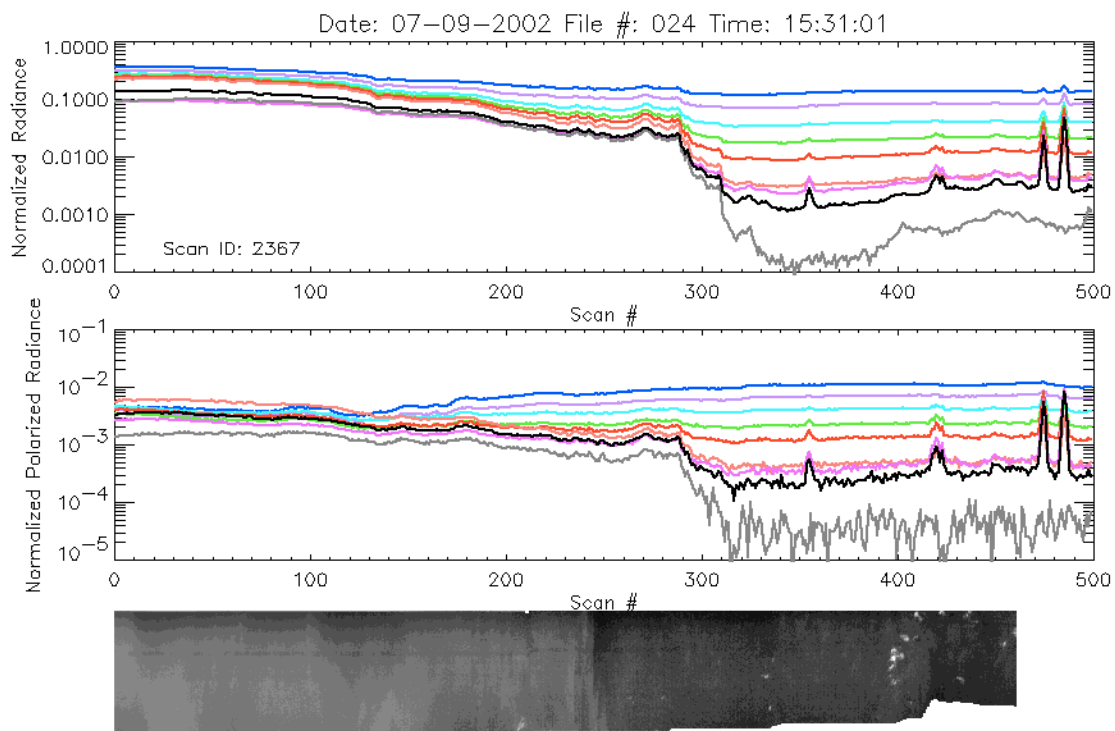
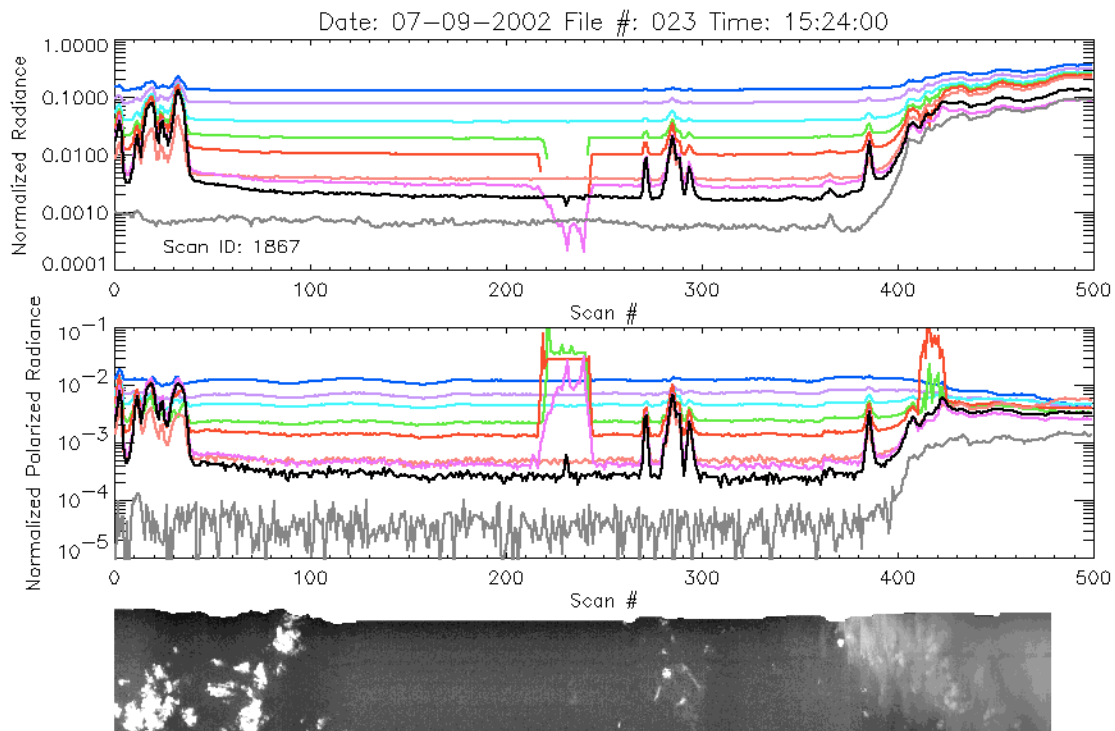


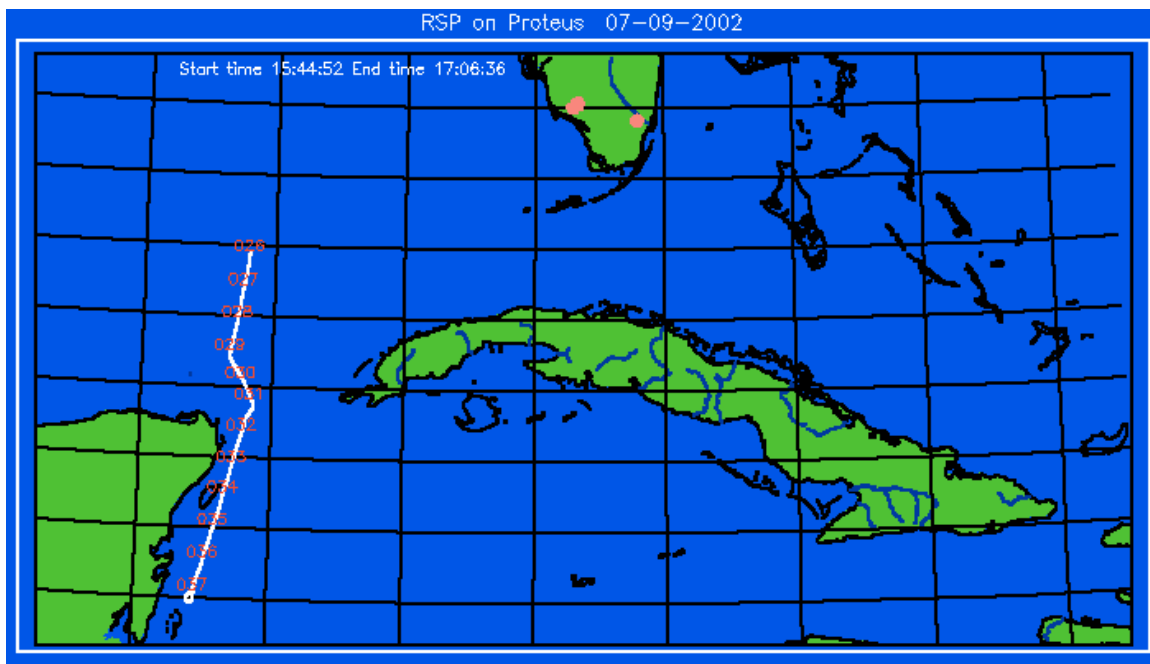
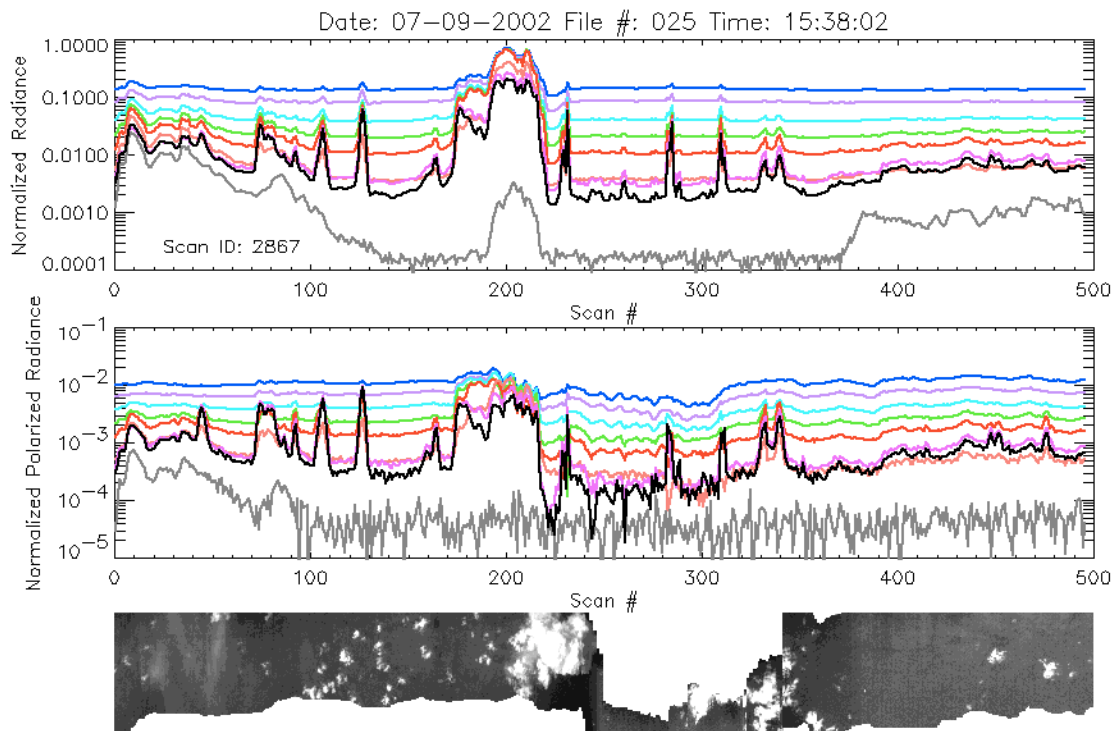


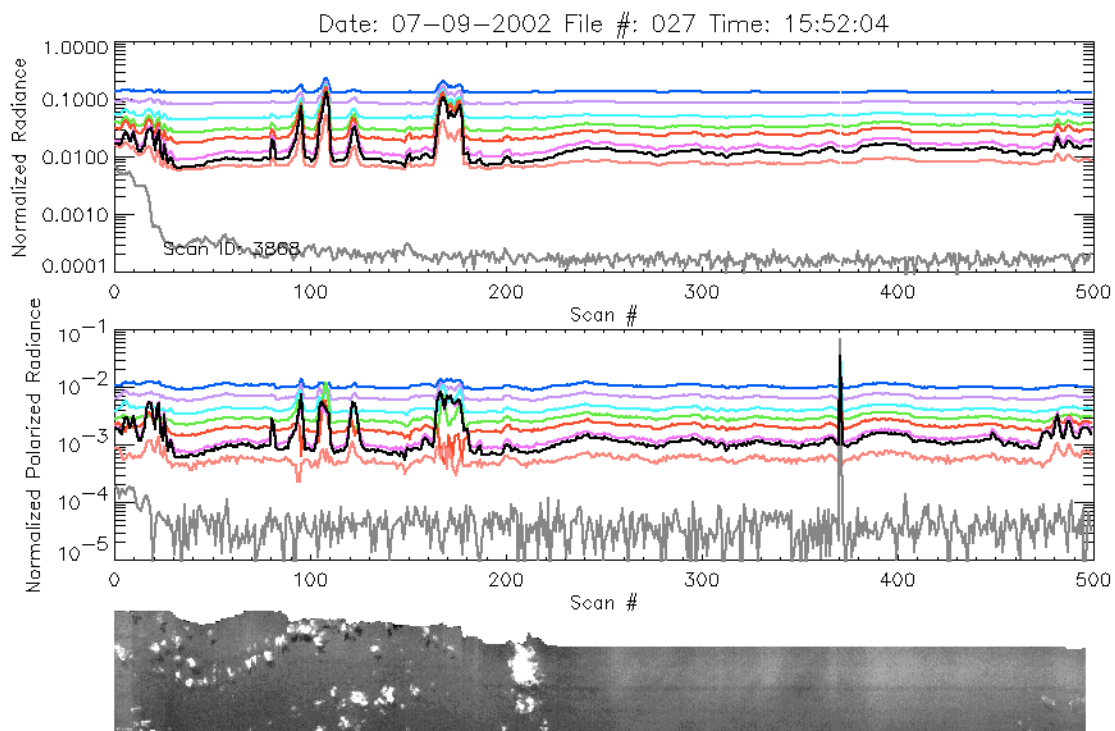
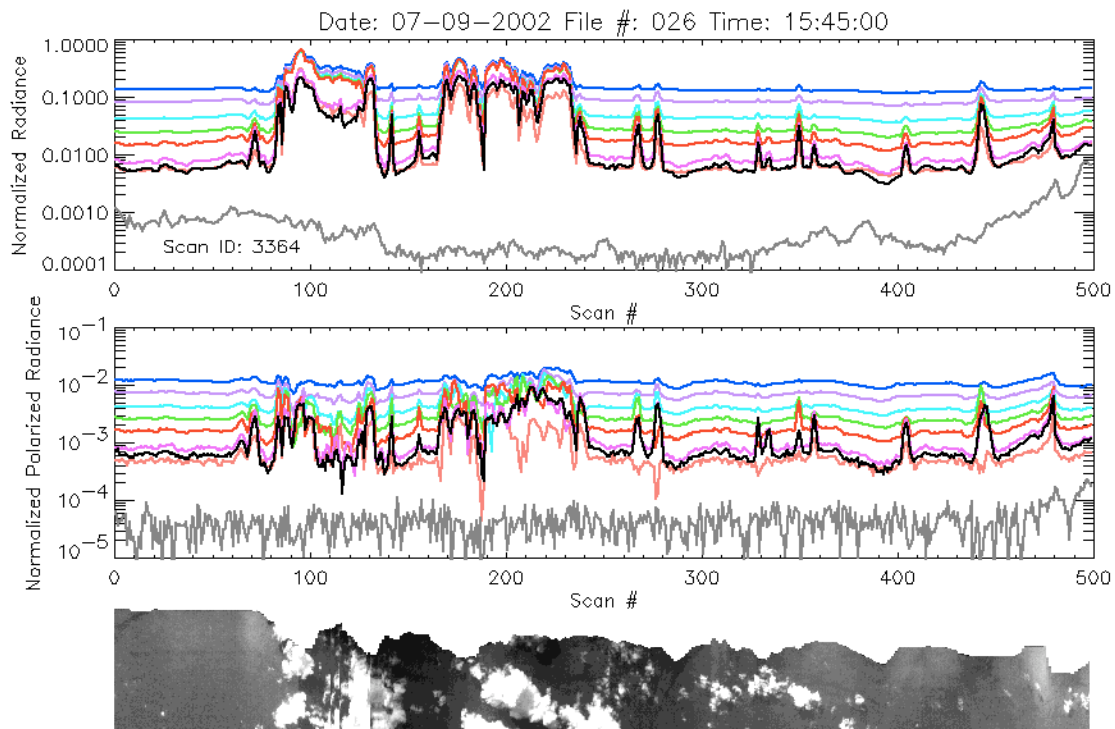


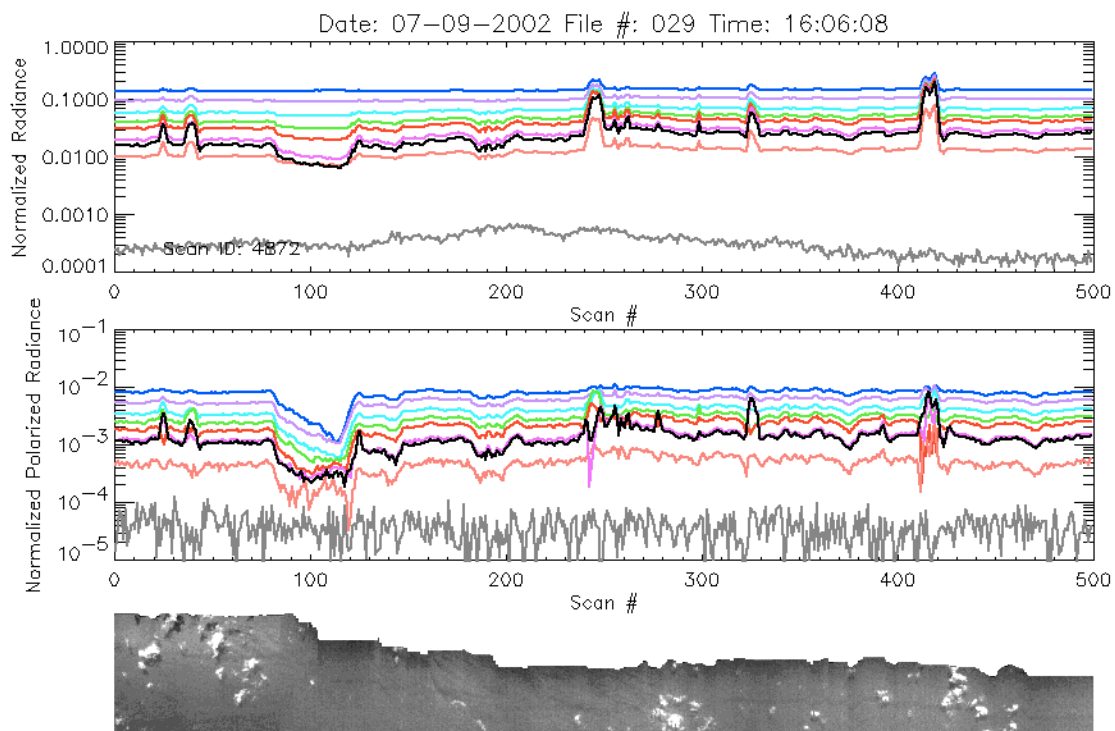
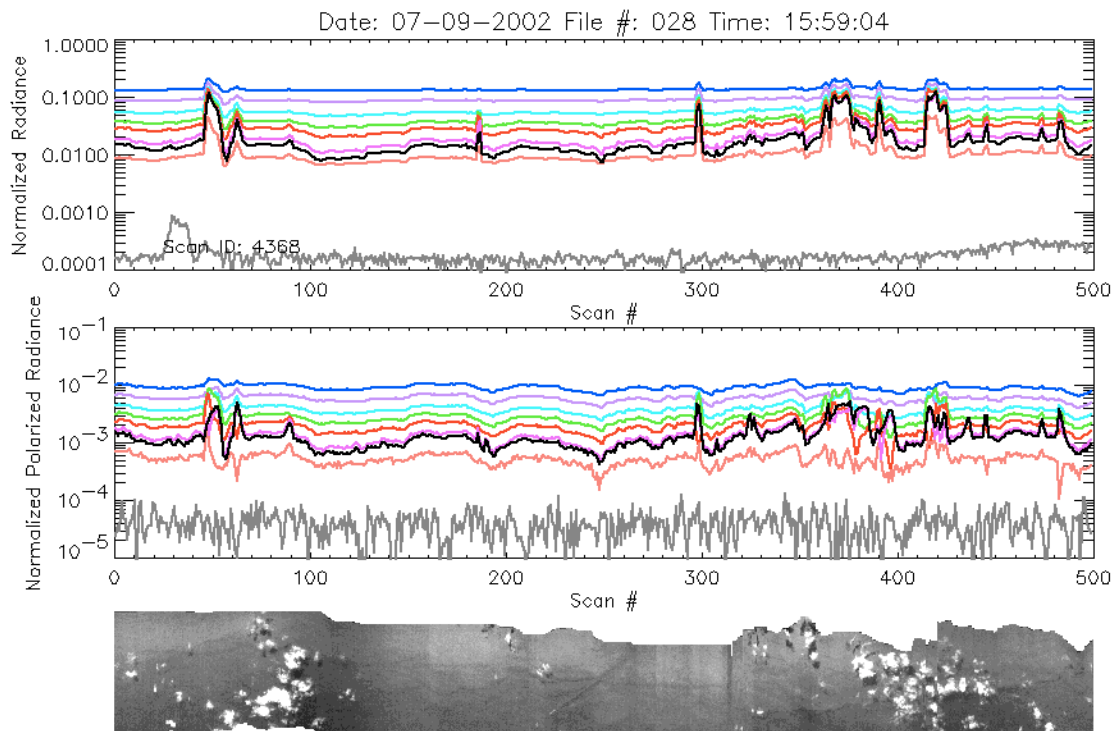




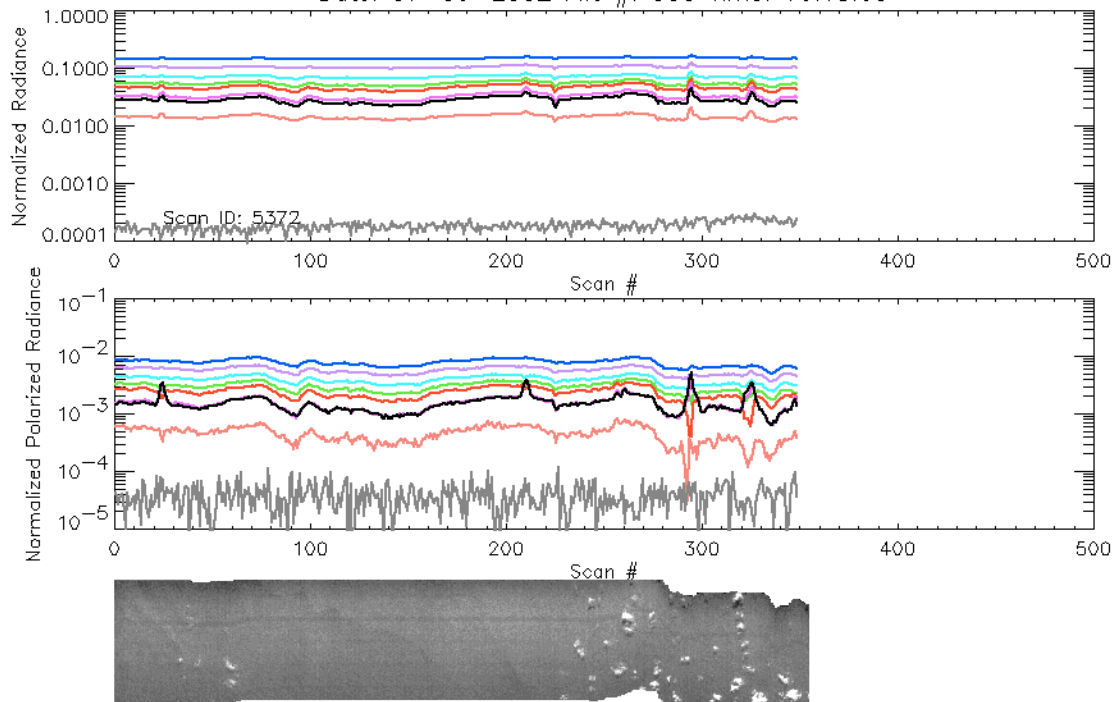




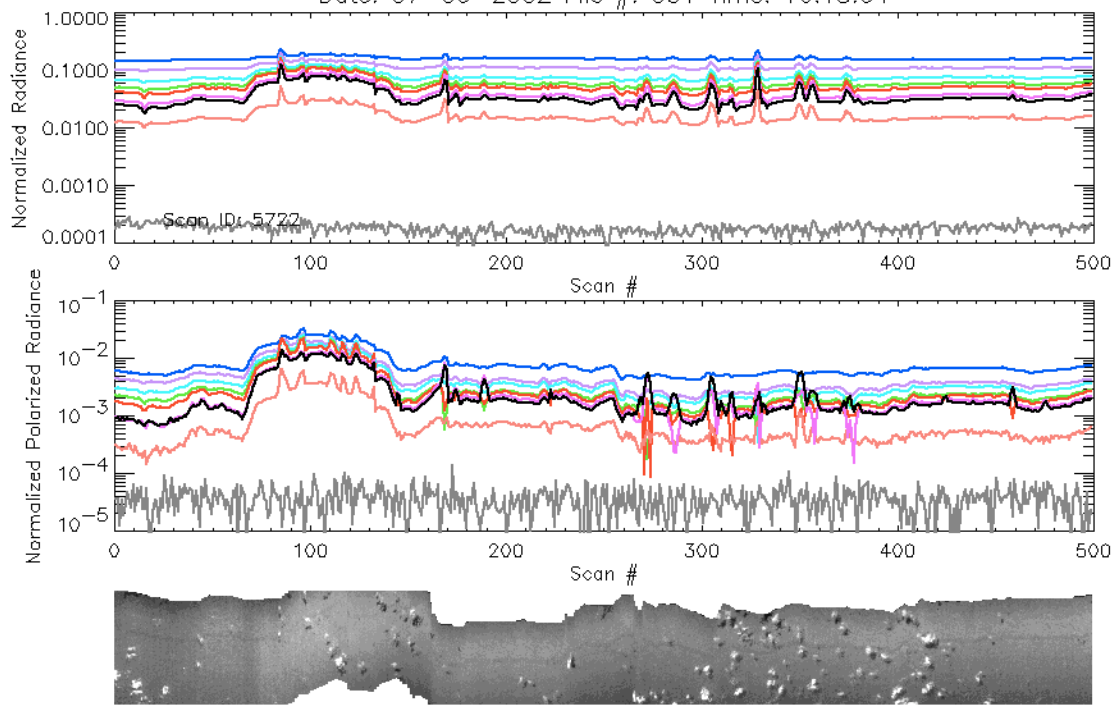


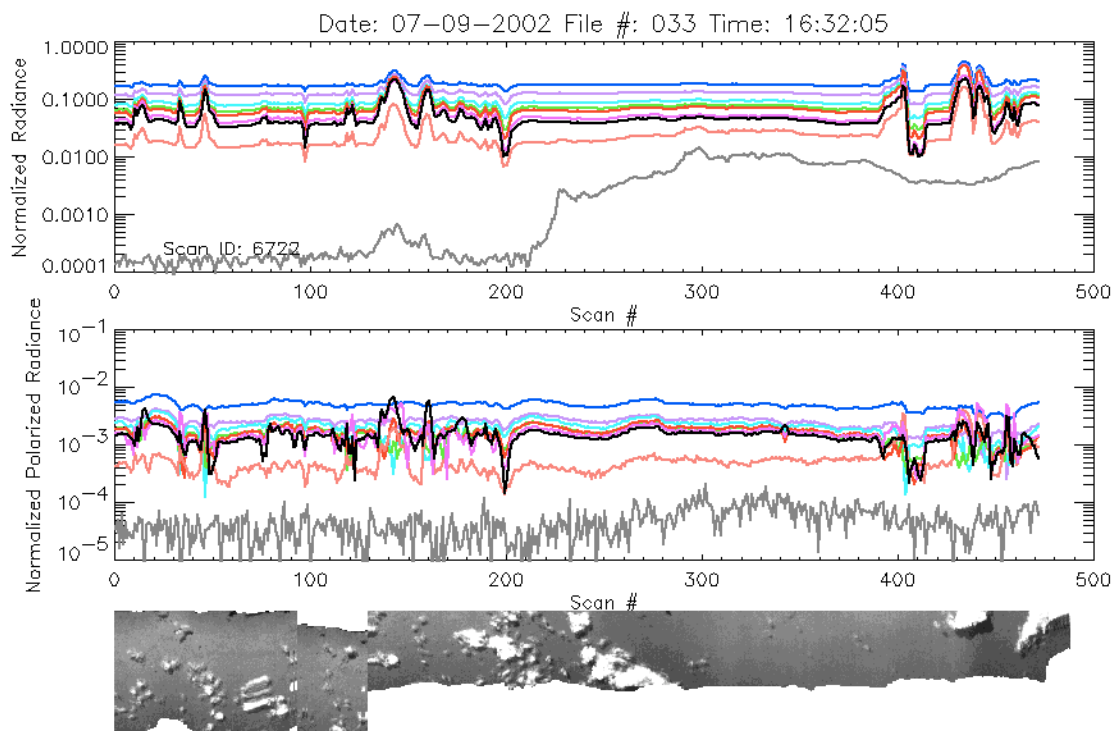
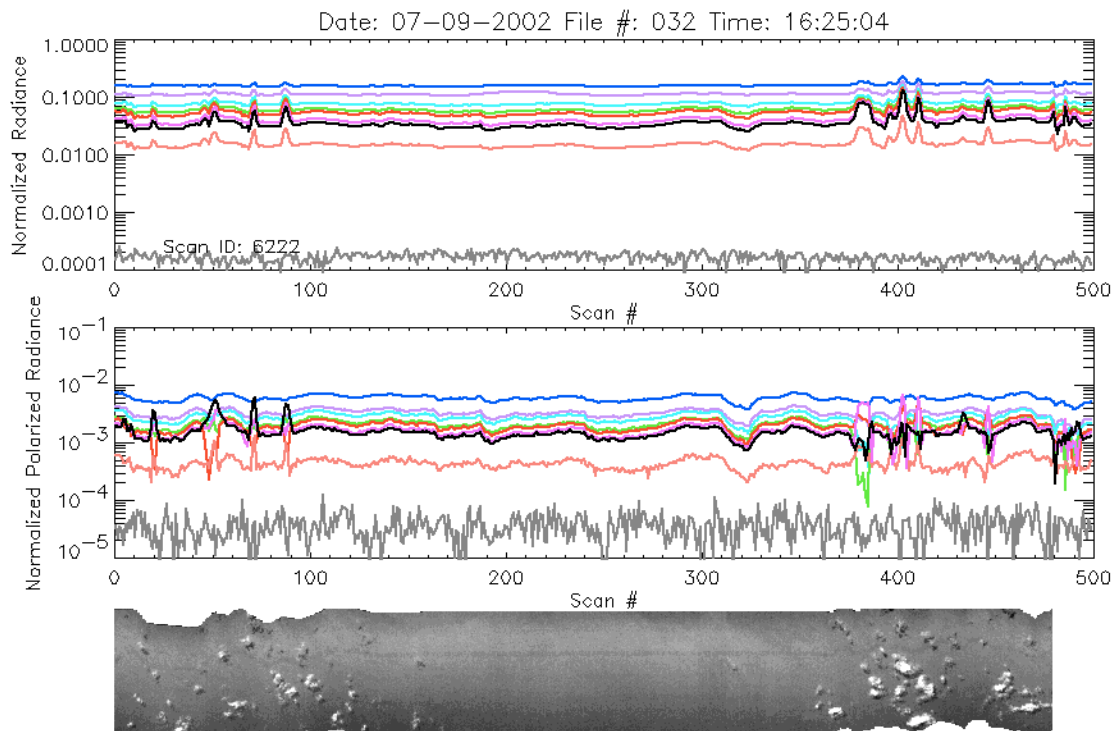


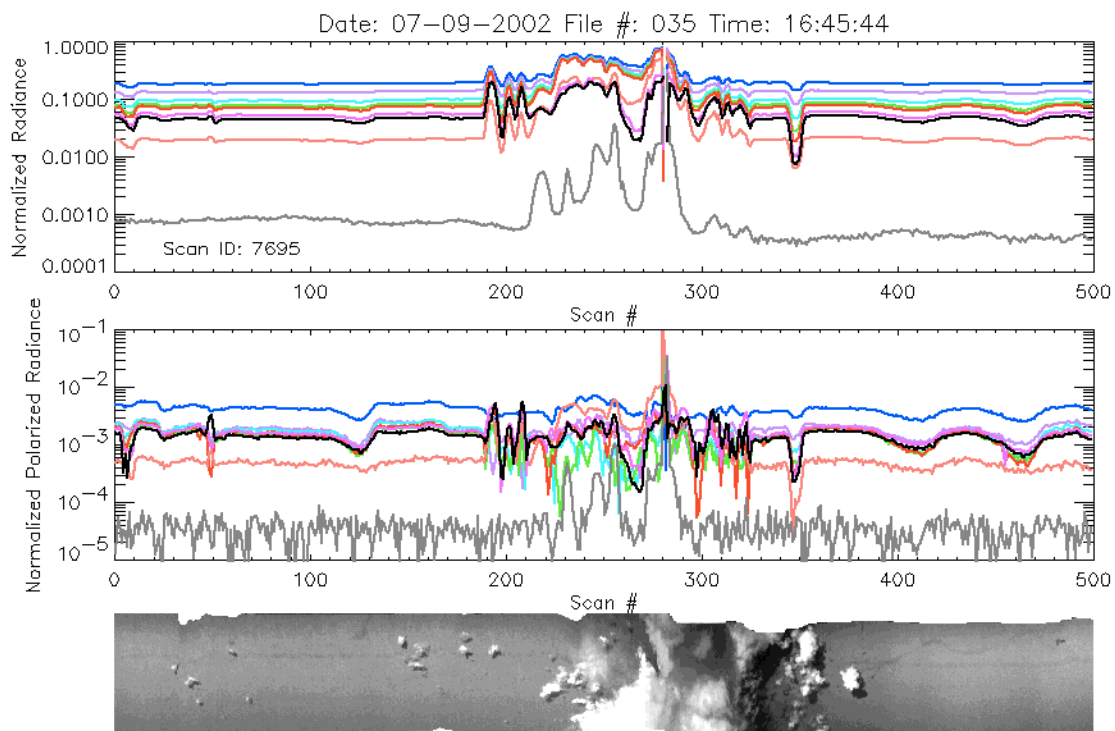
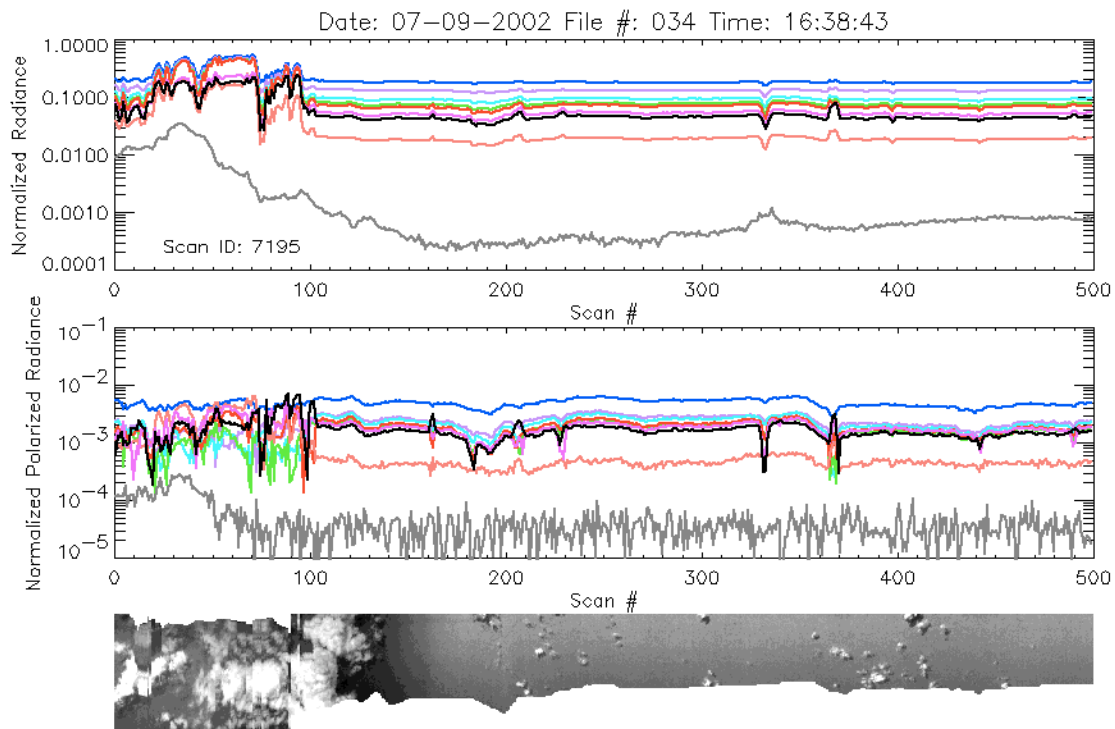
Date: 07-09-2002 File #: 030 Time: 16:13:09

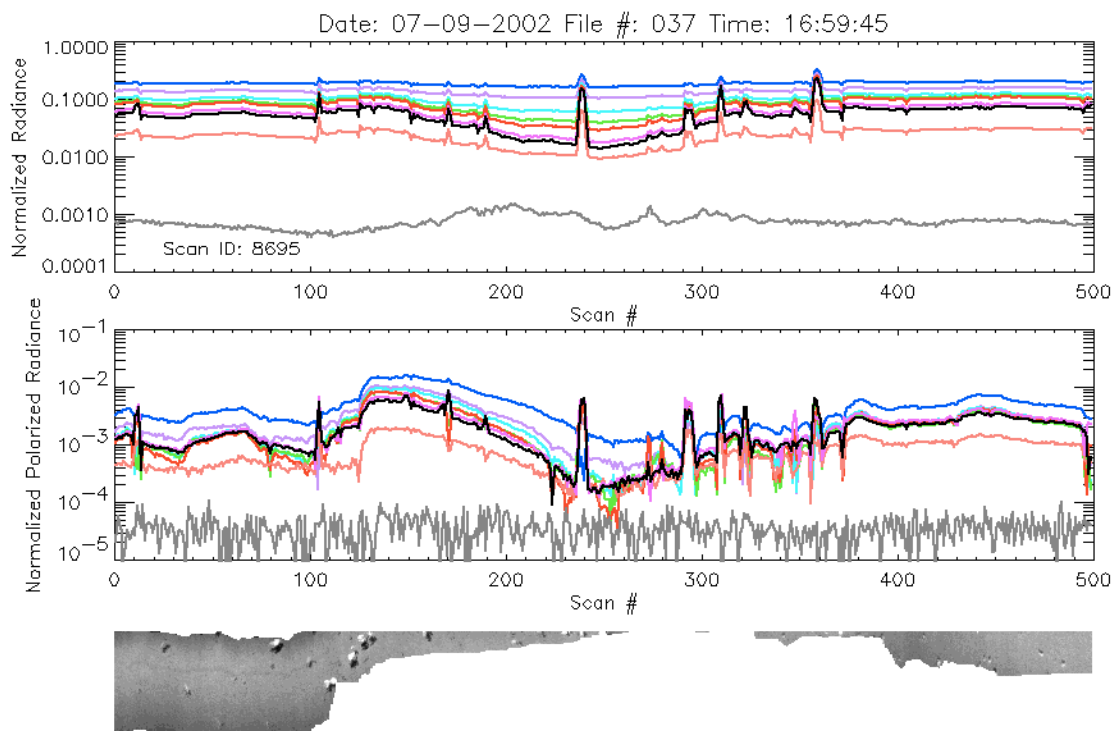
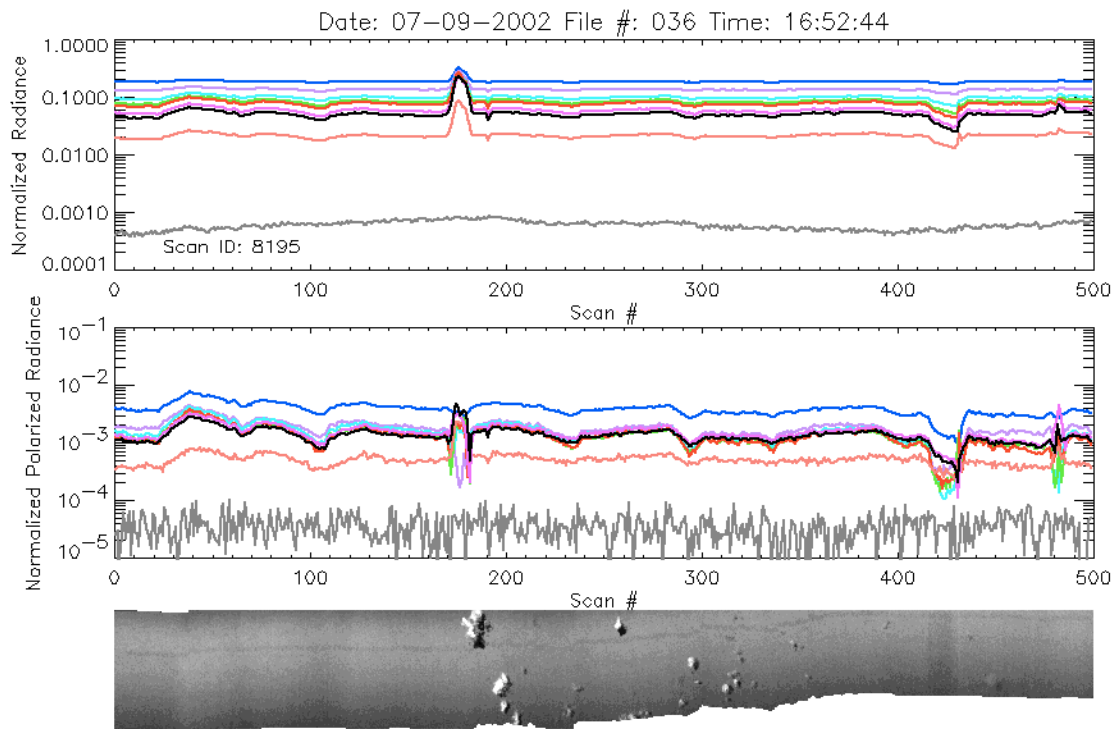


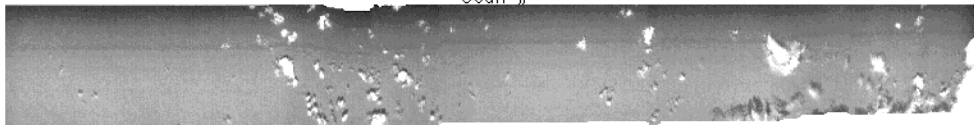
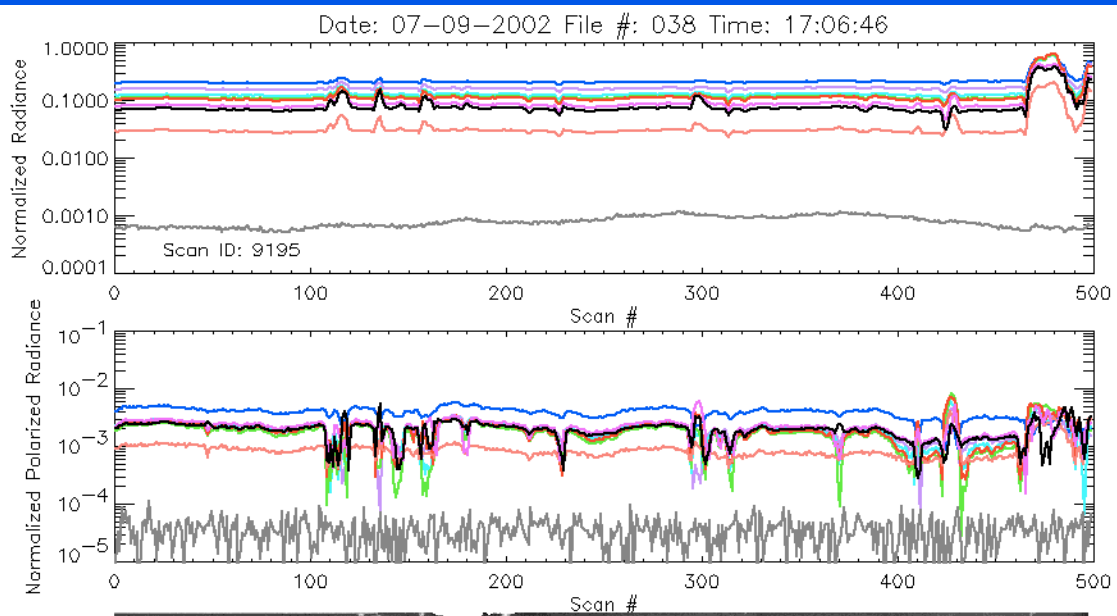
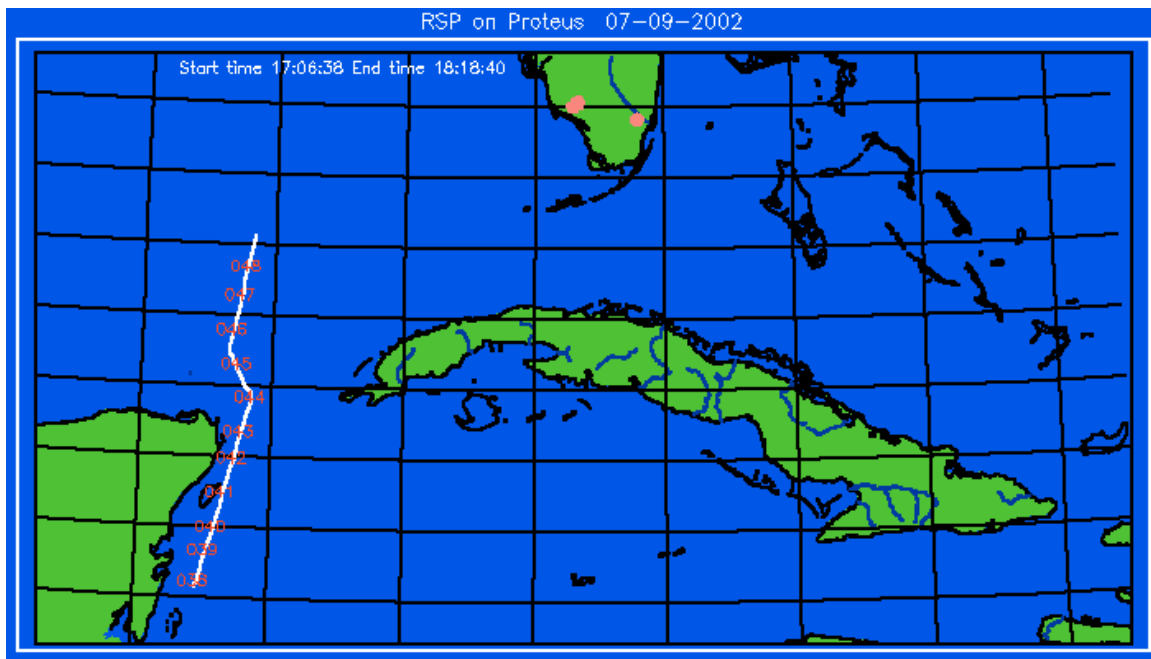
Date: 07-09-2002 File #: 031 Time: 16:18:04

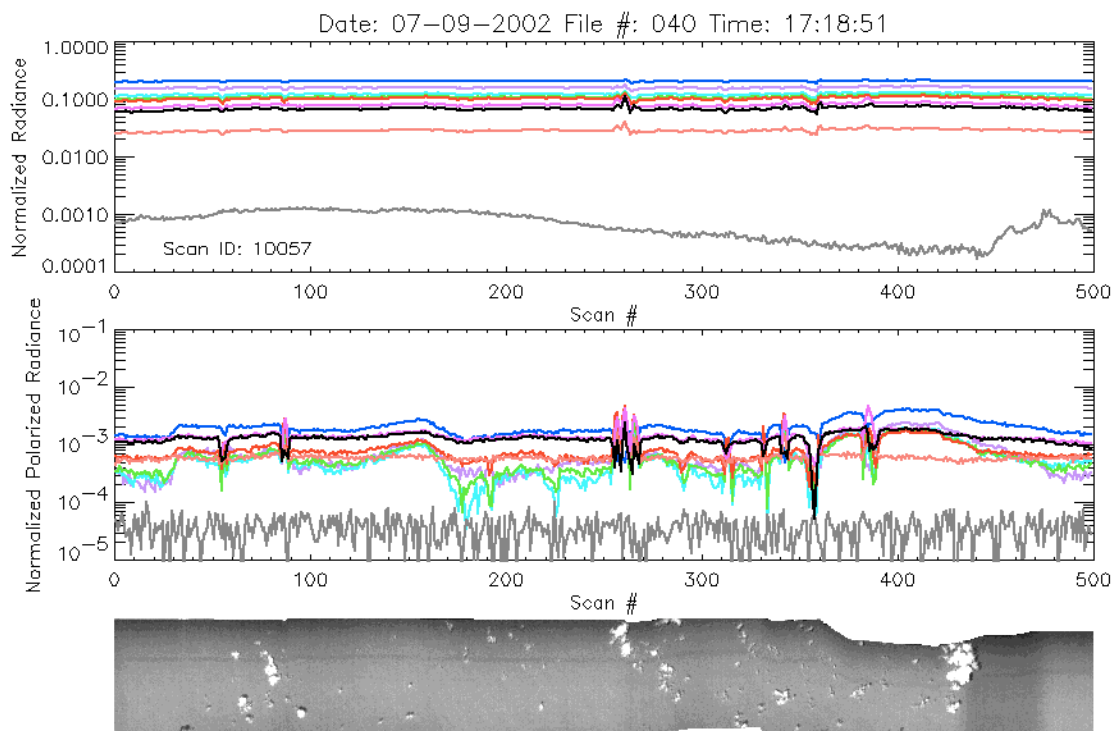
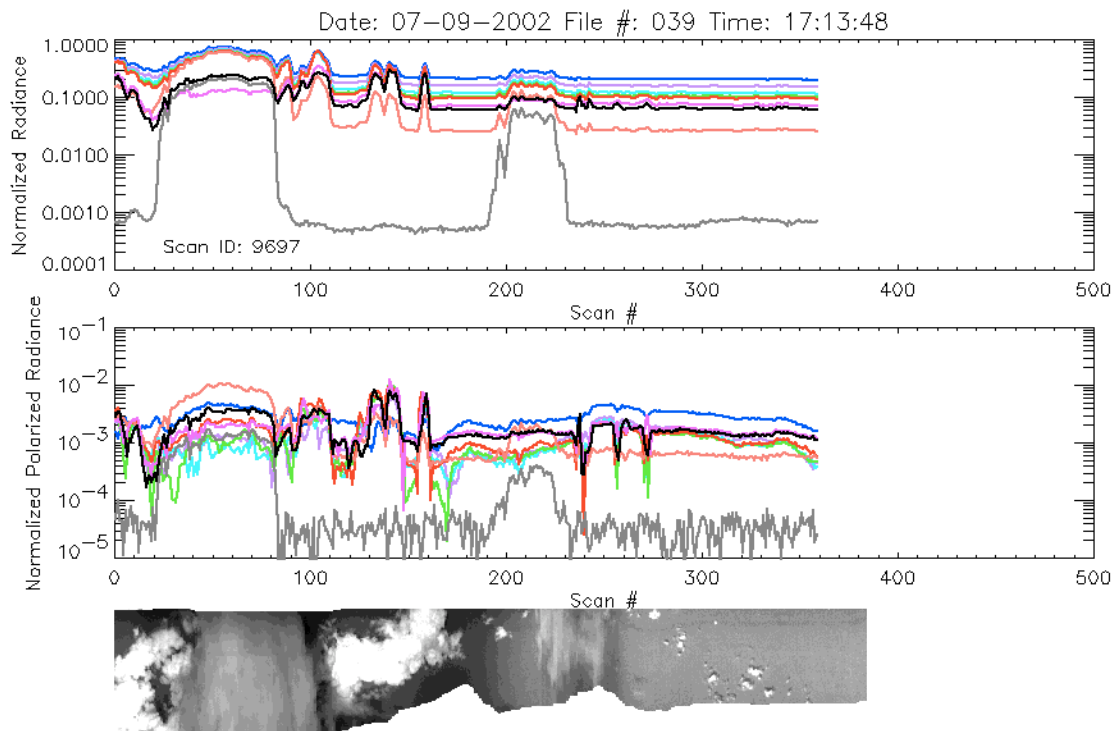


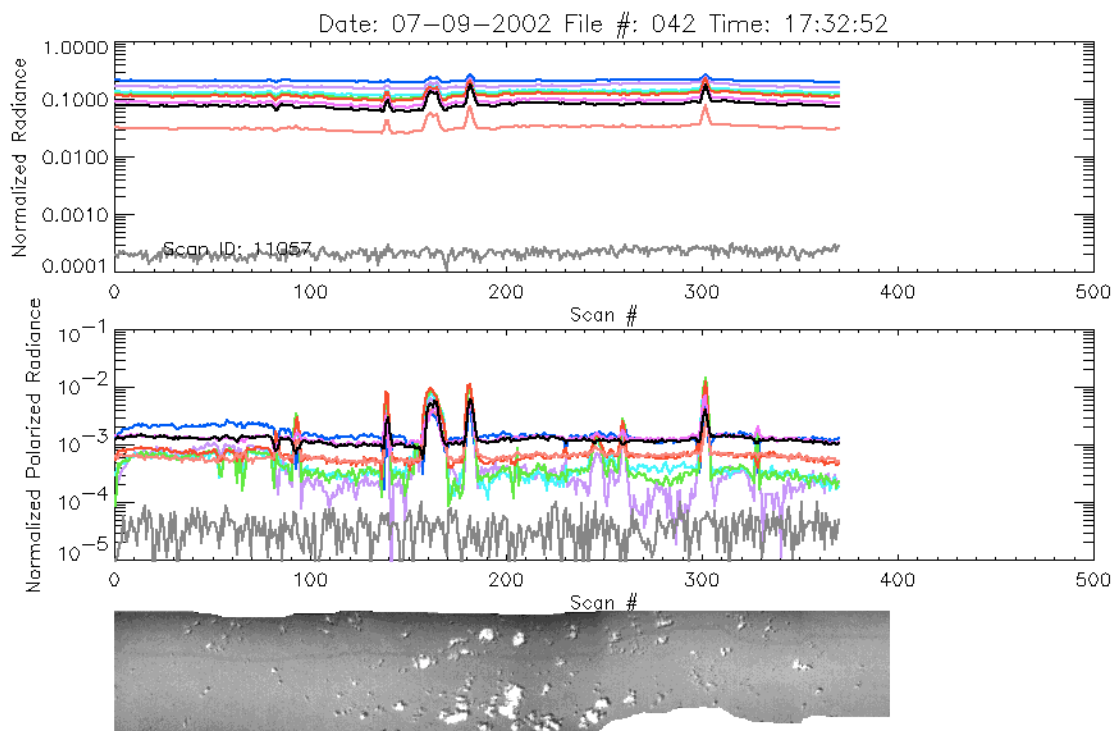
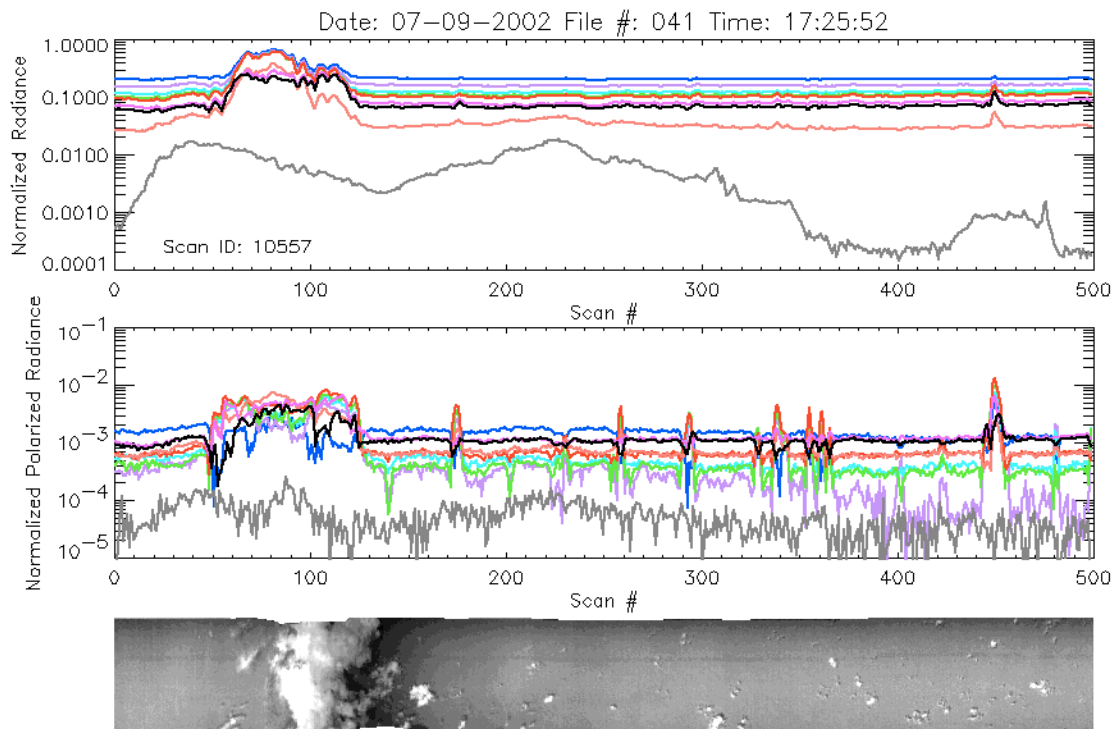




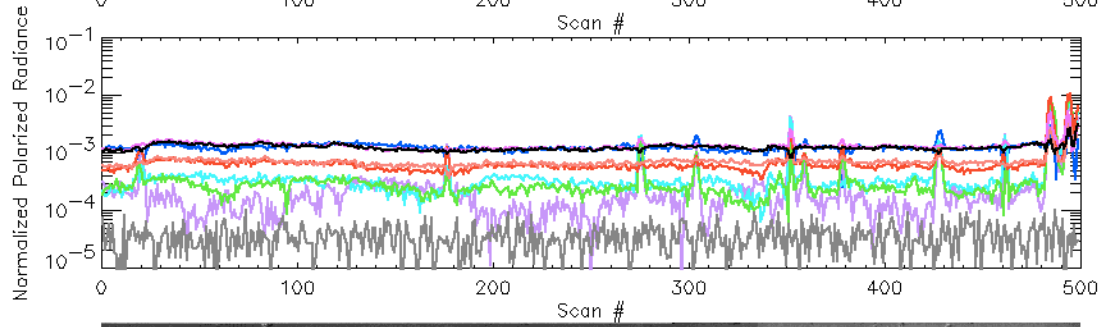
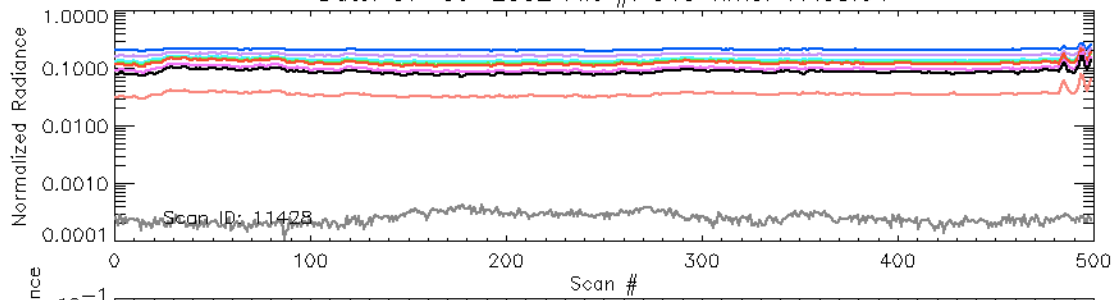




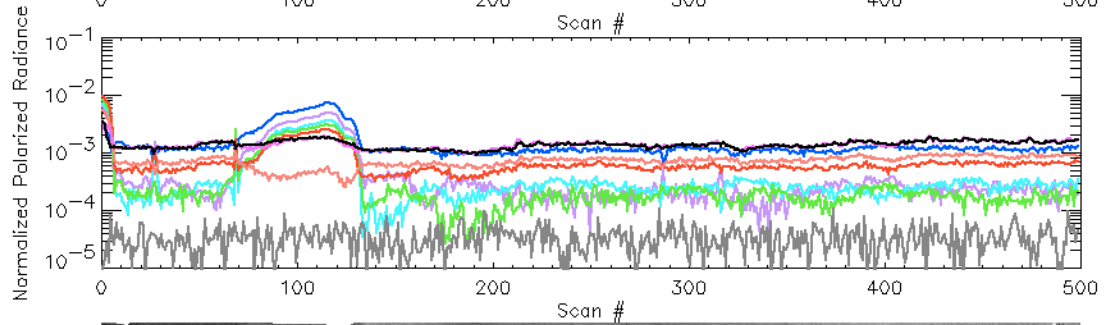
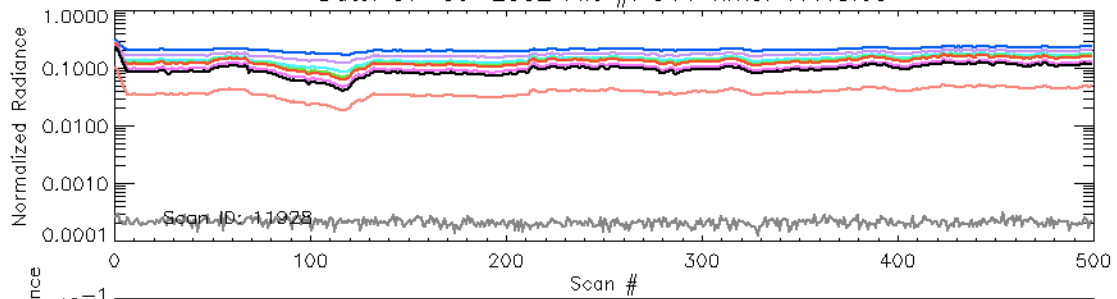


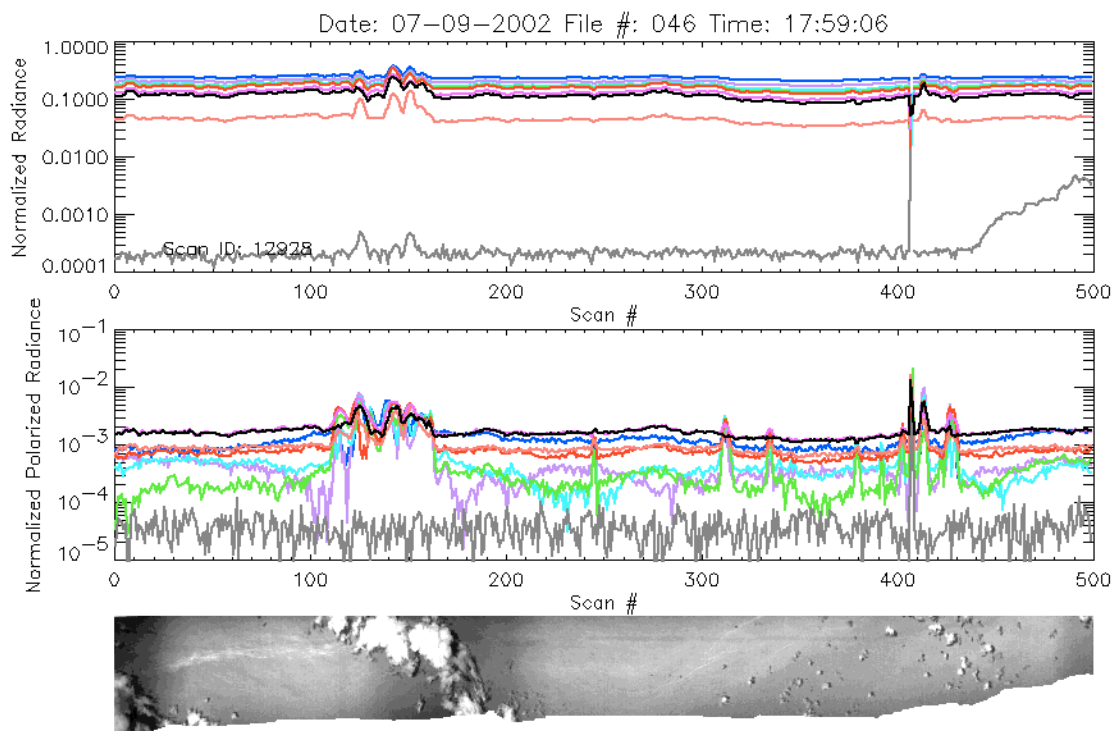
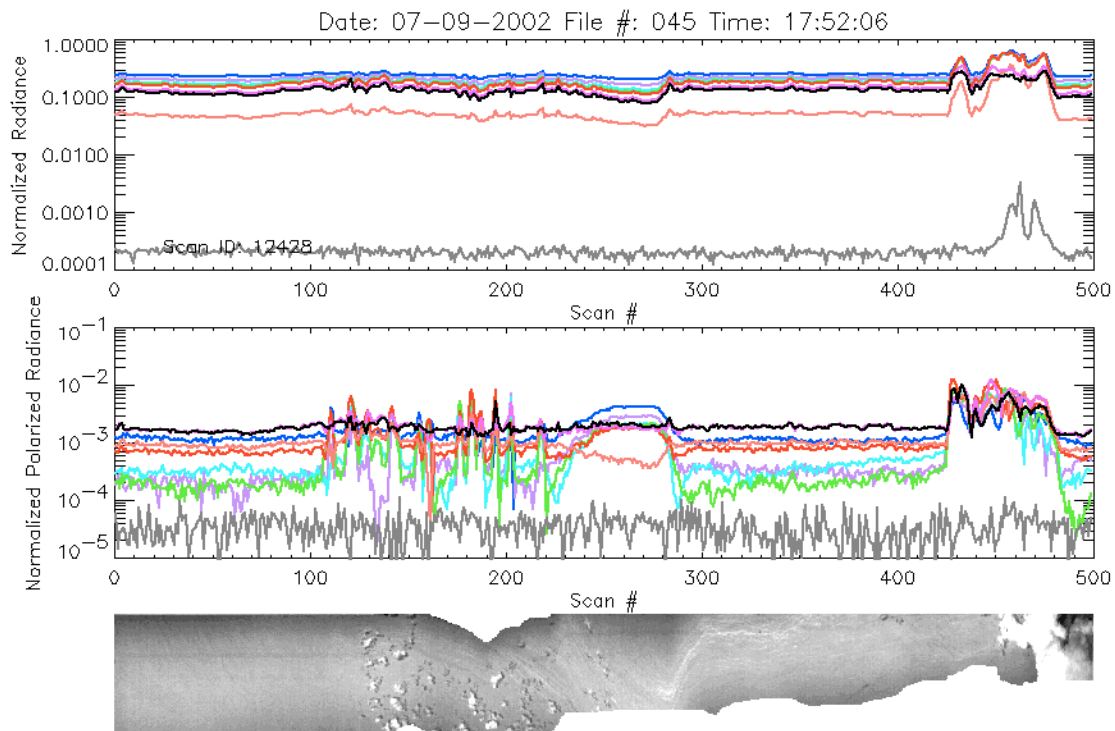


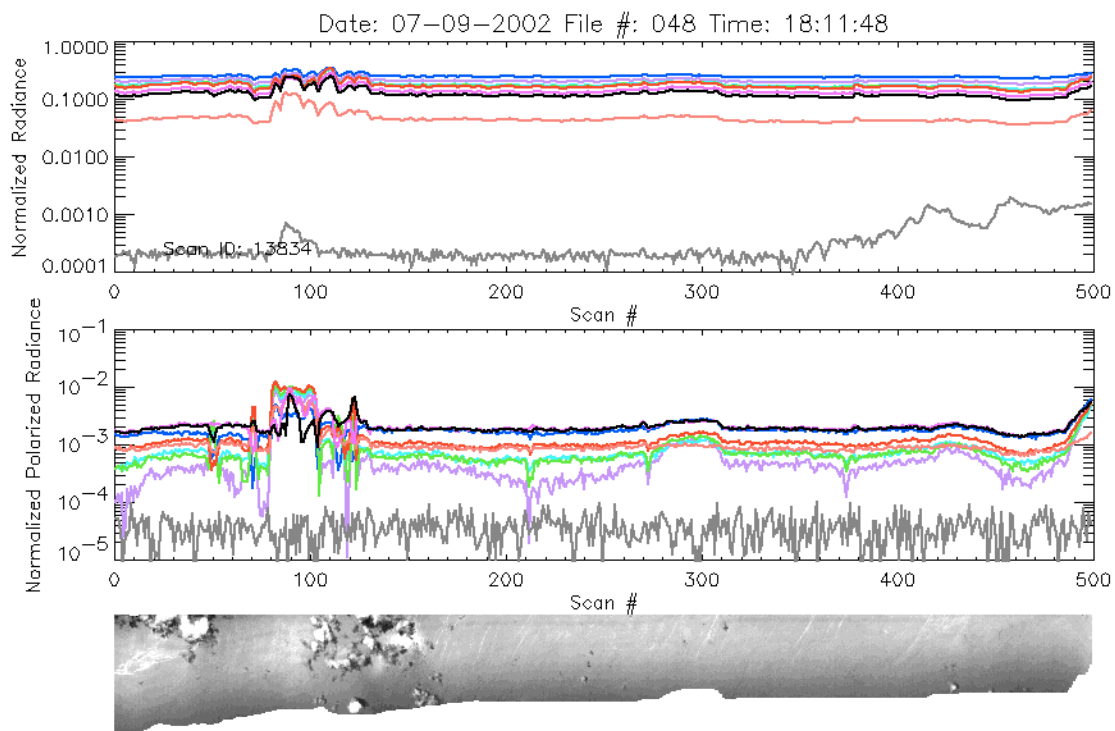
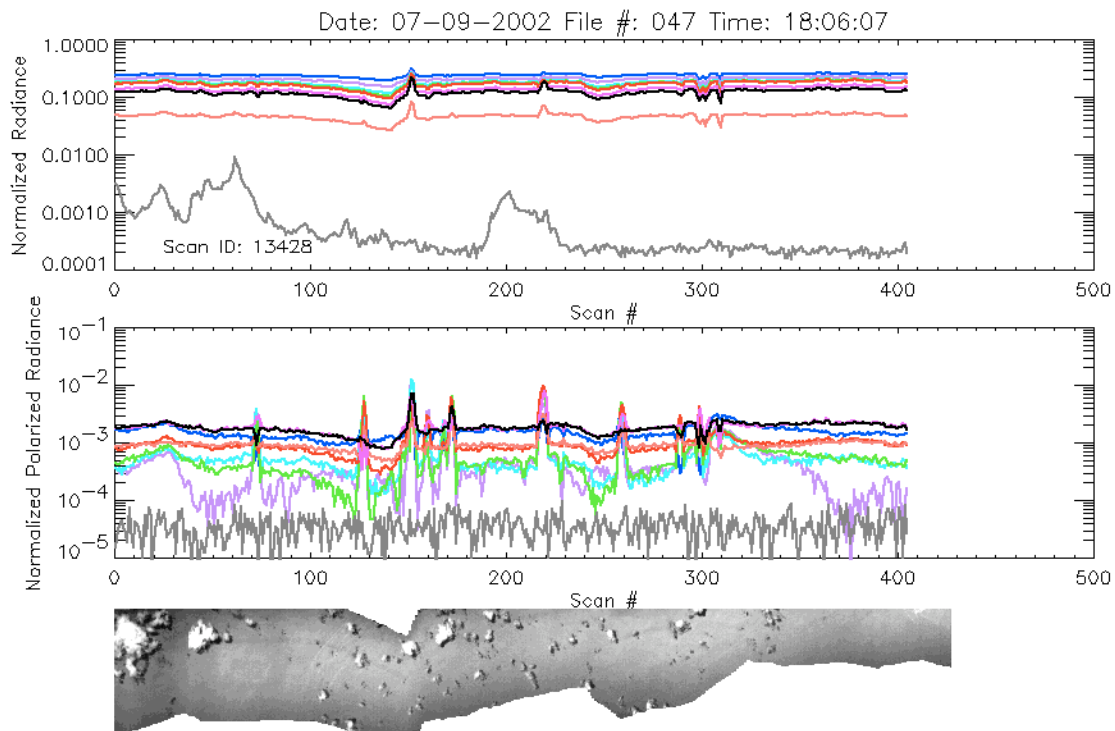
Date: 07-09-2002 File #: 043 Time: 17:38:04

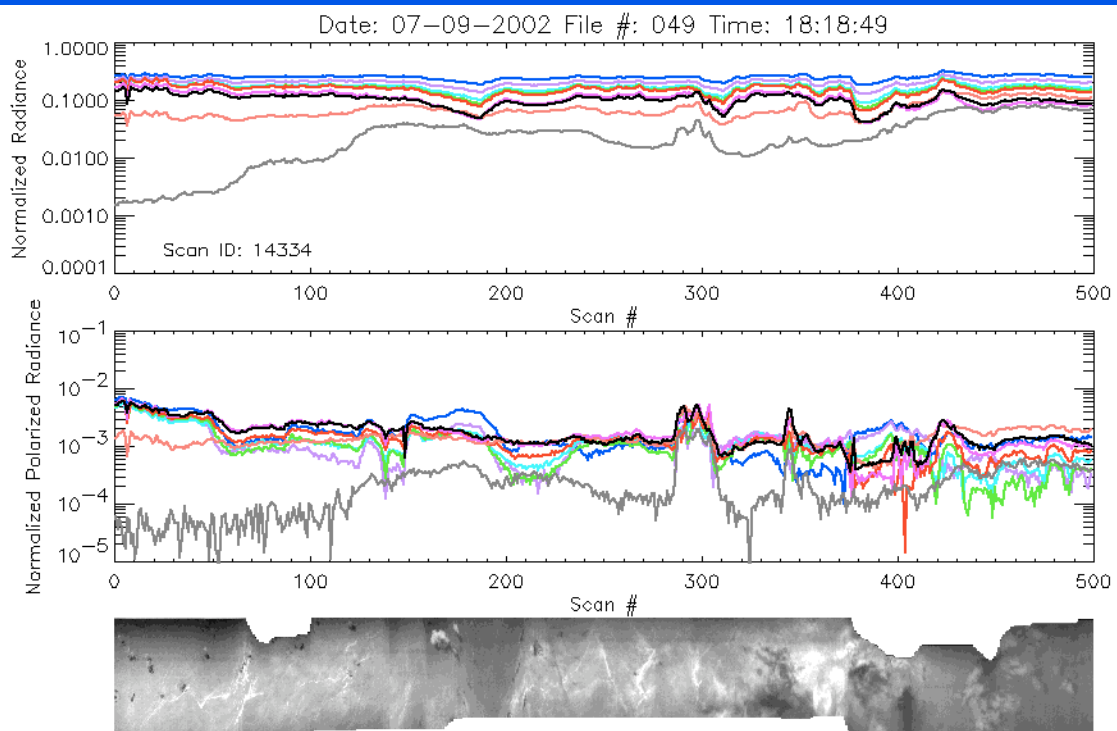
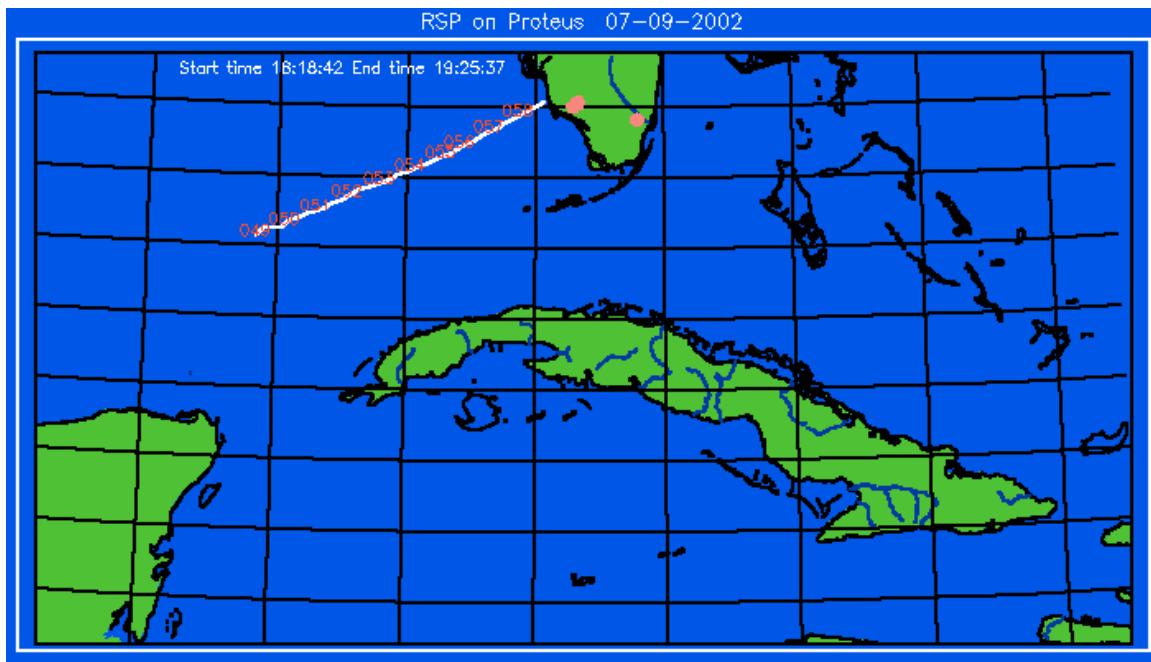


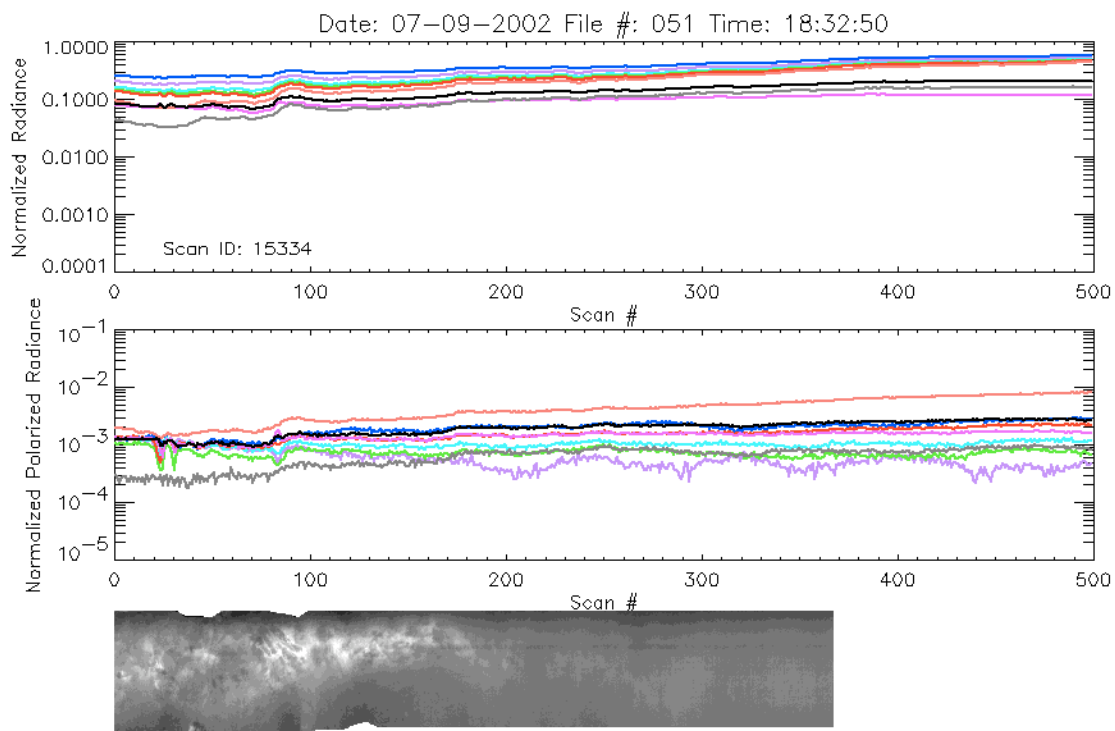
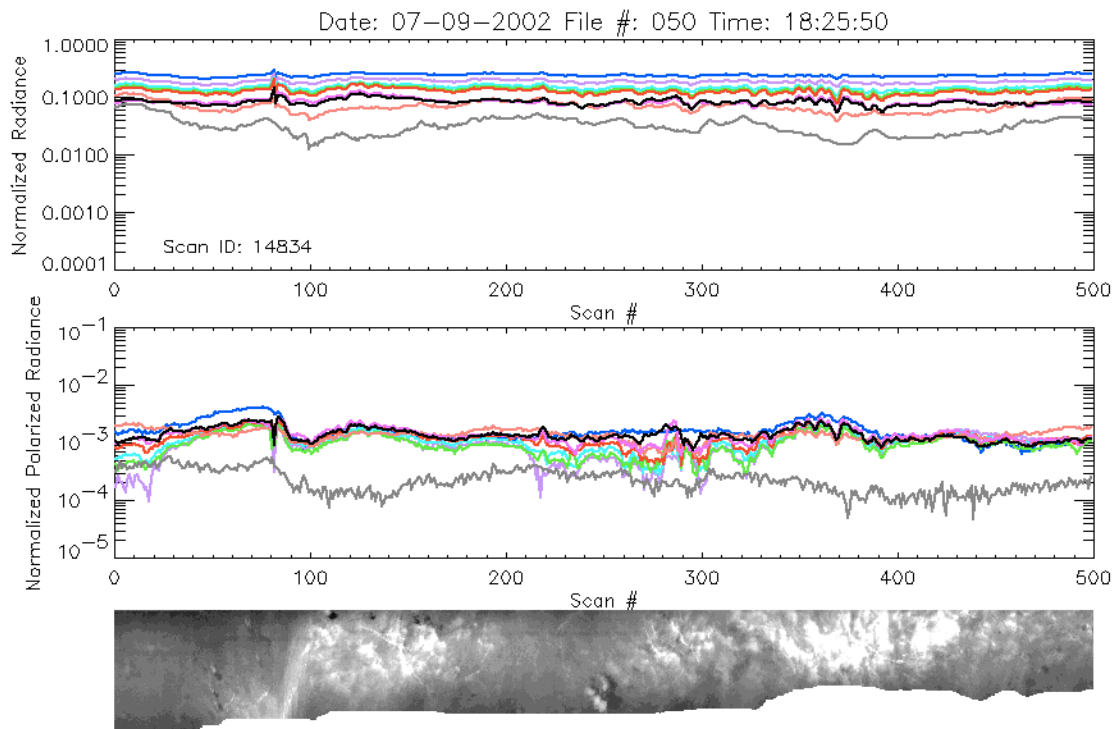
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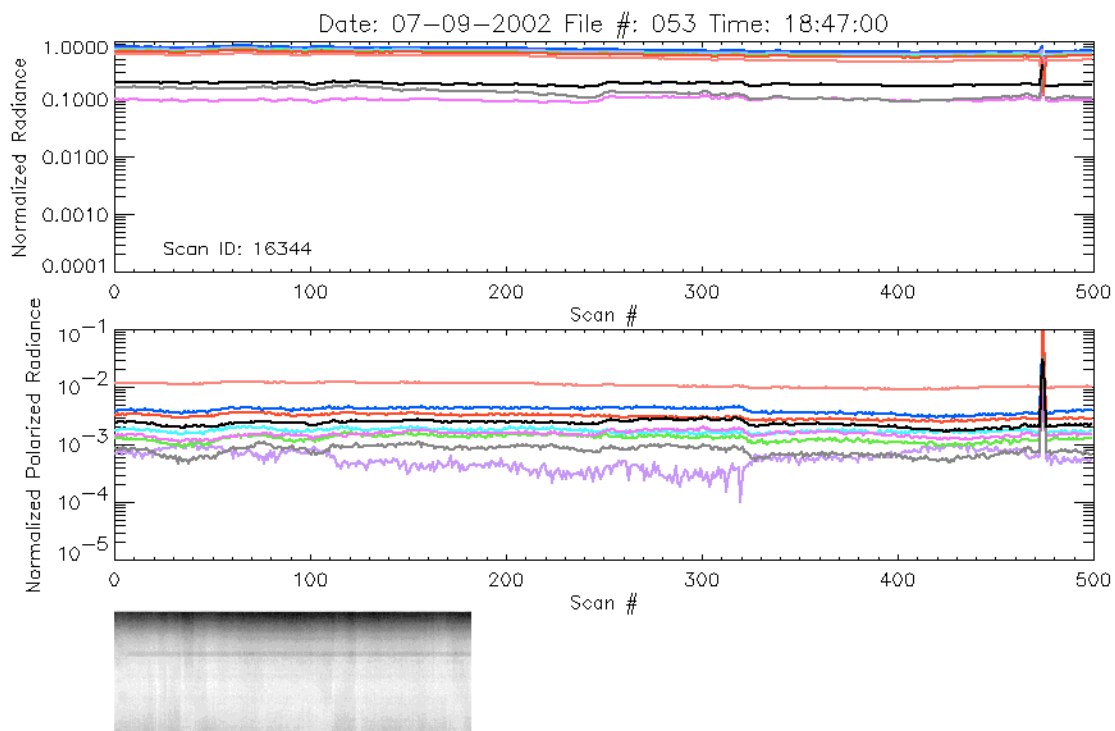
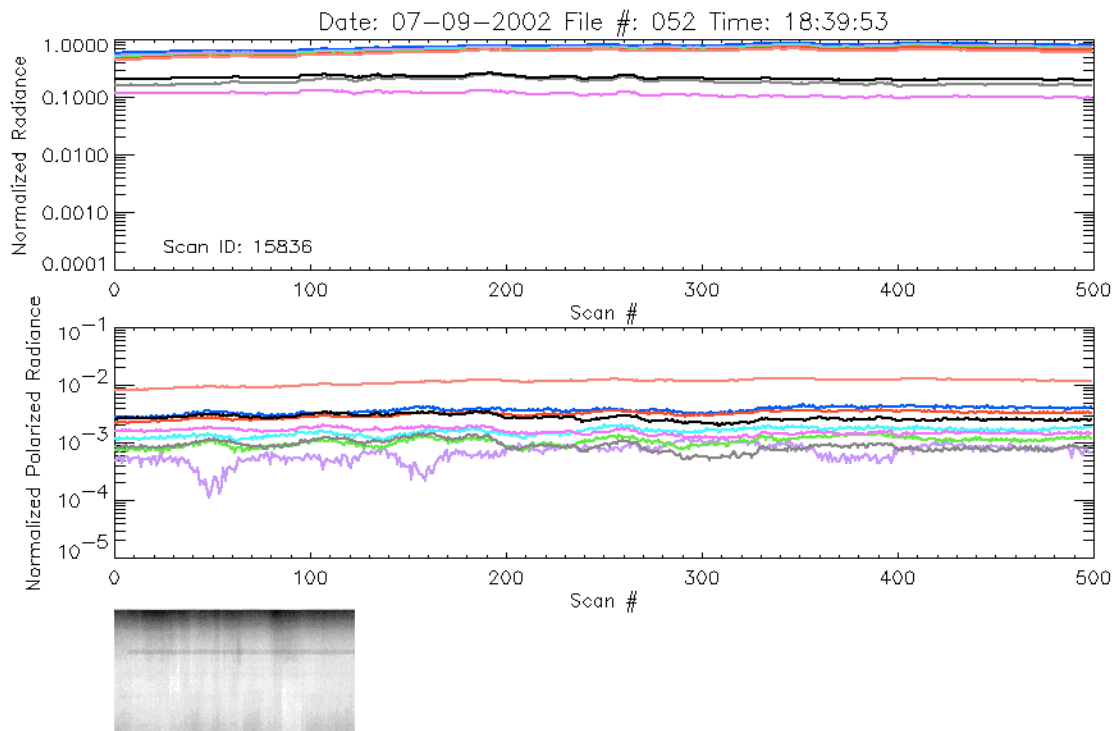


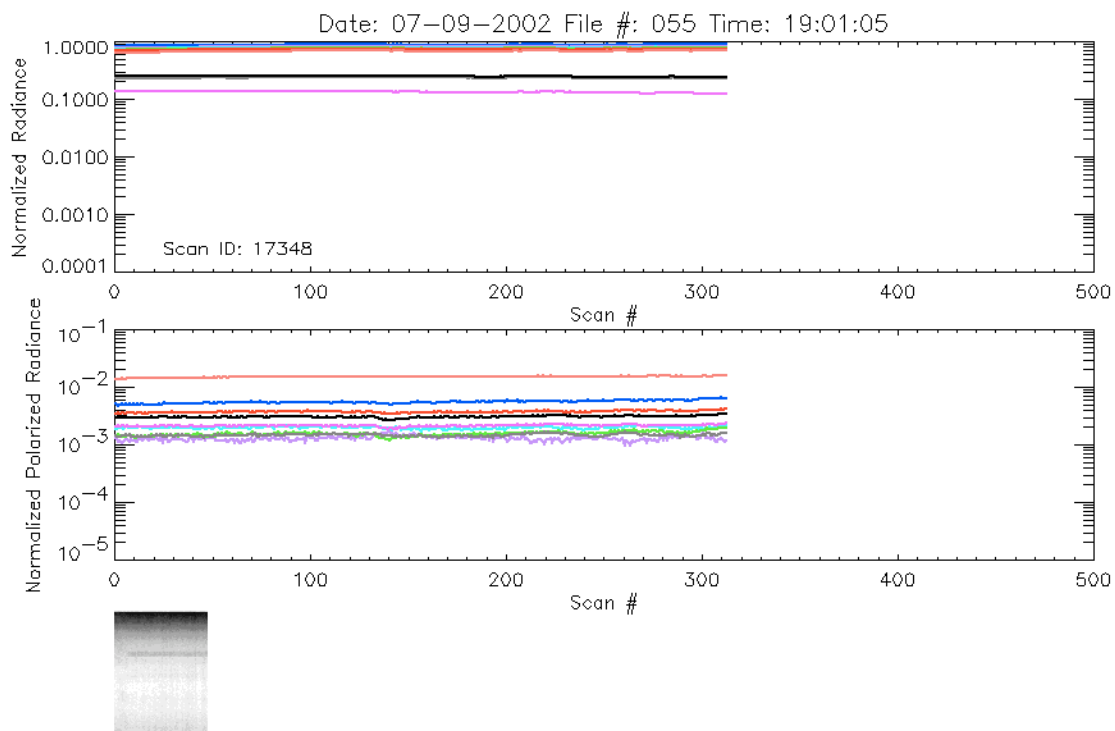
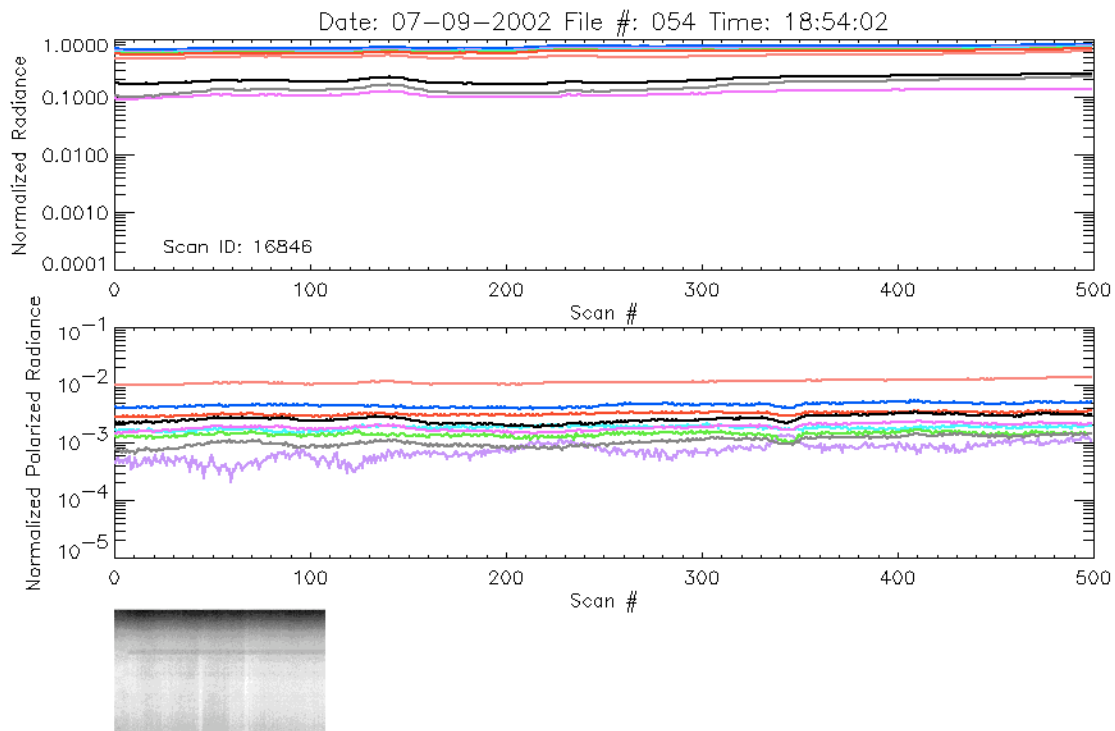


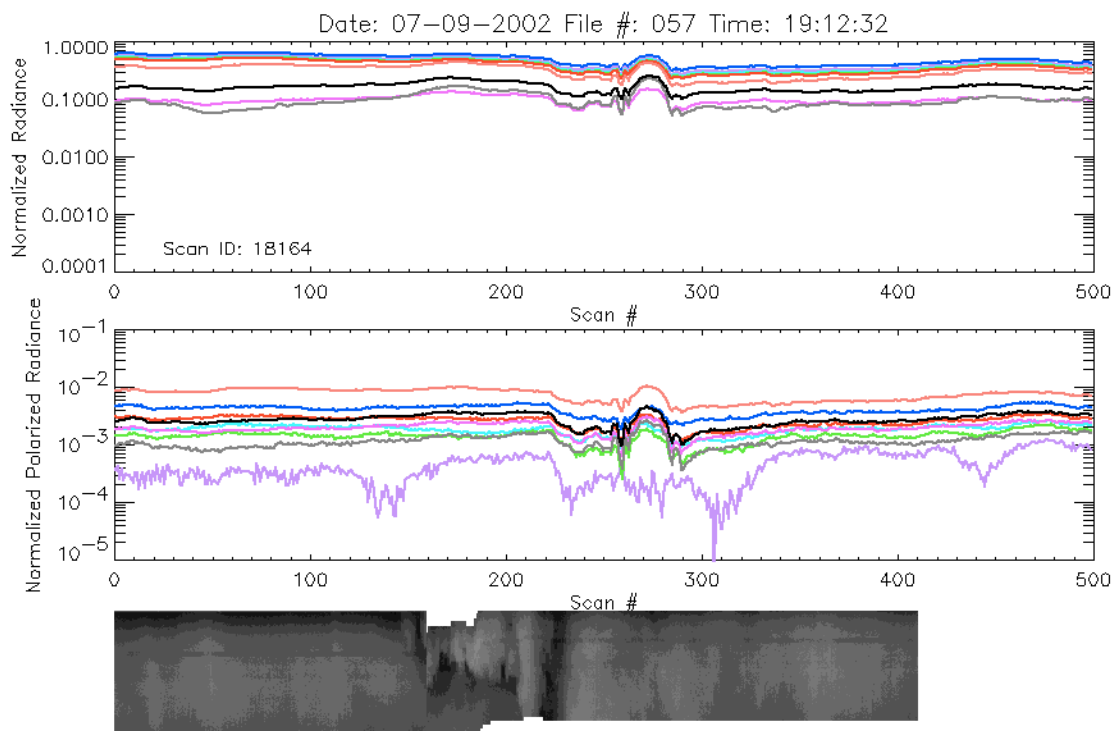
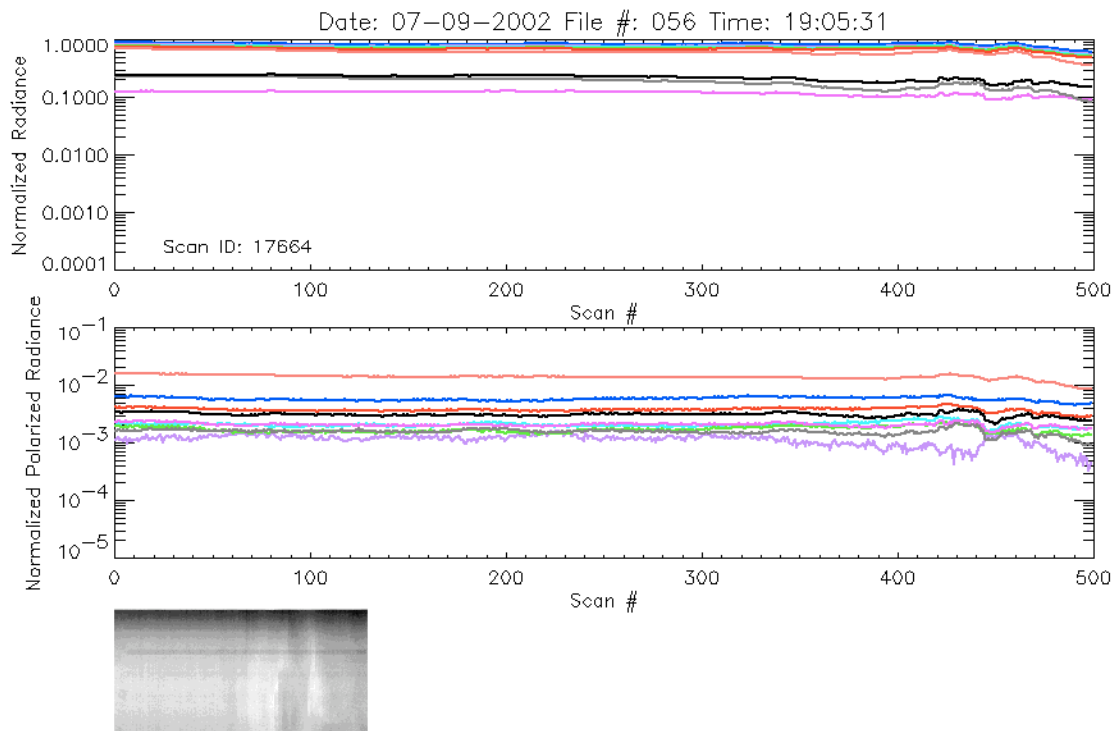


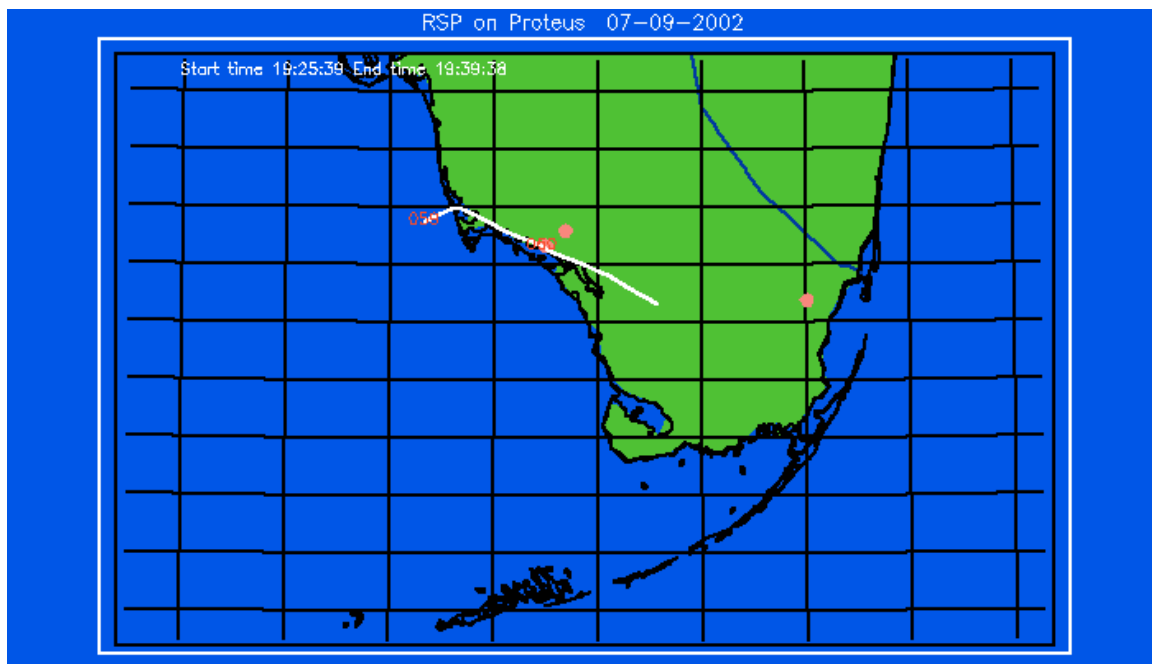
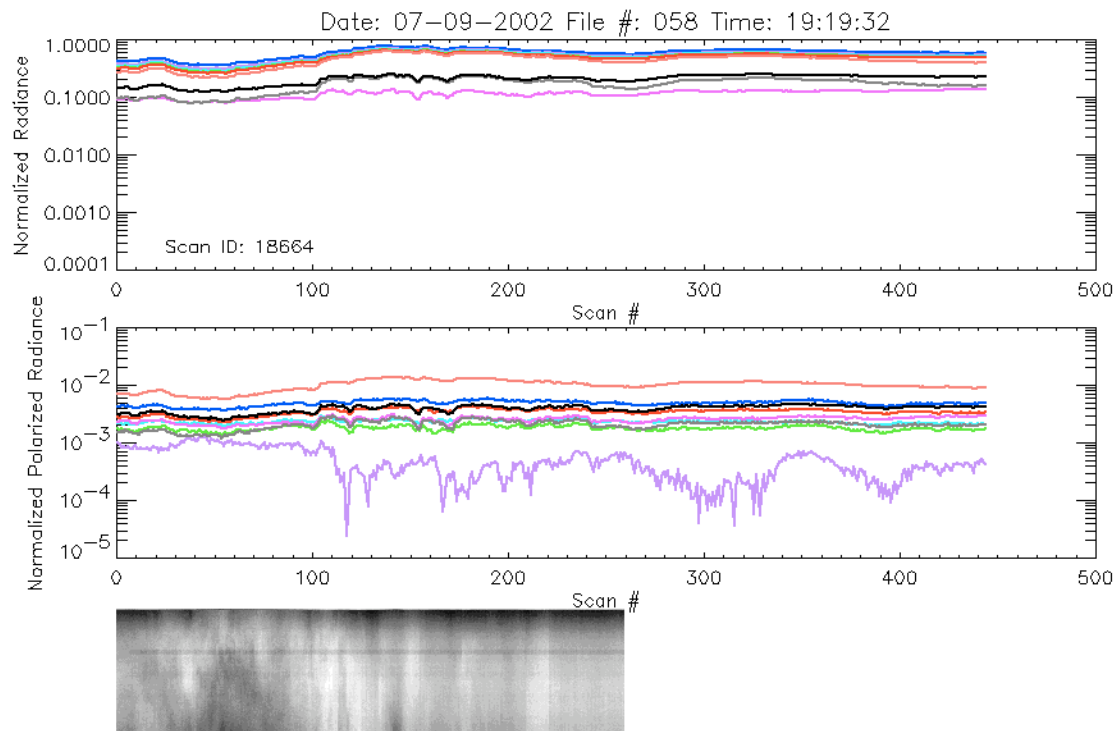


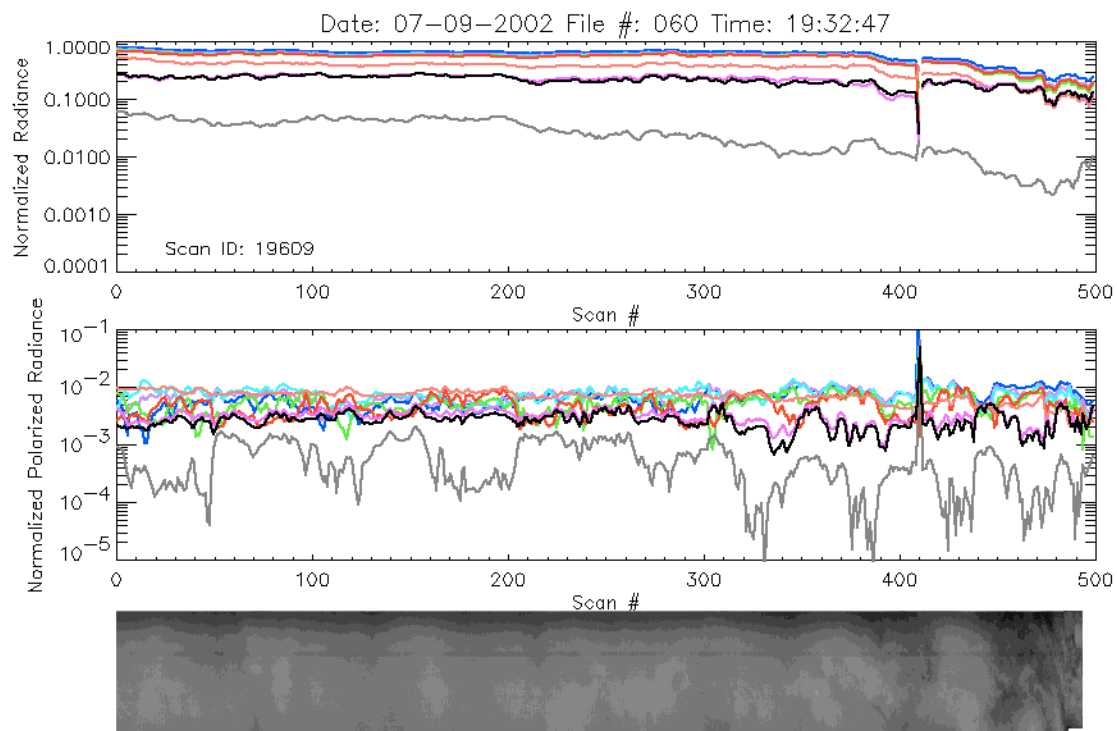
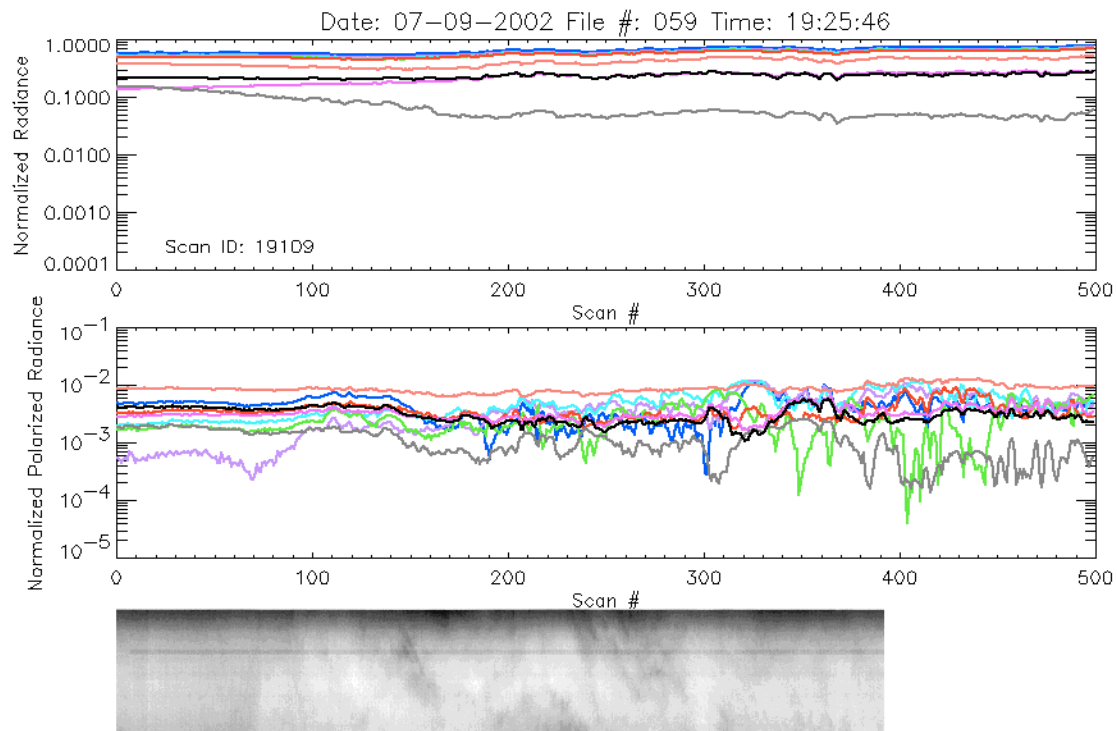




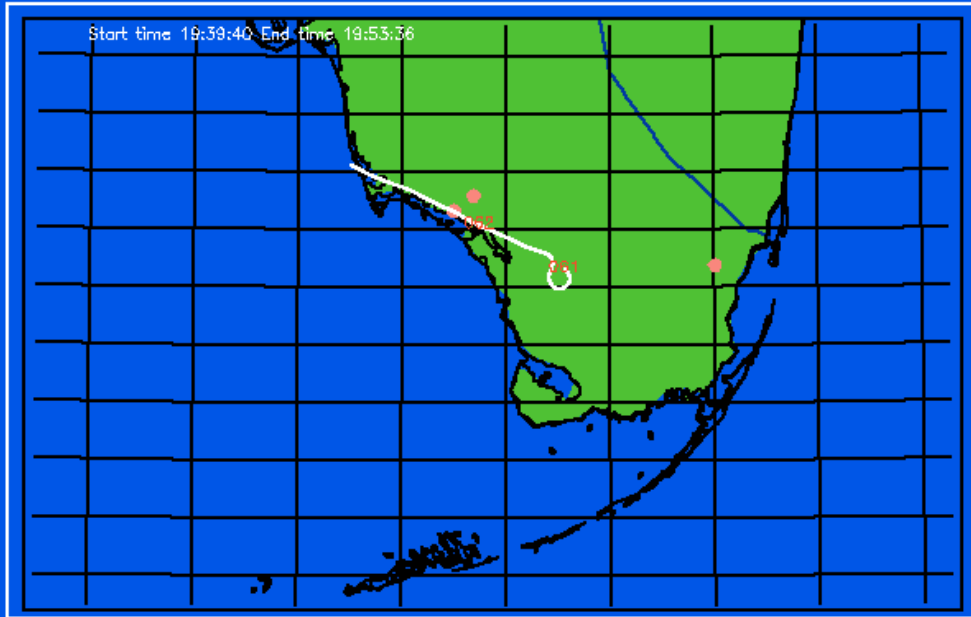




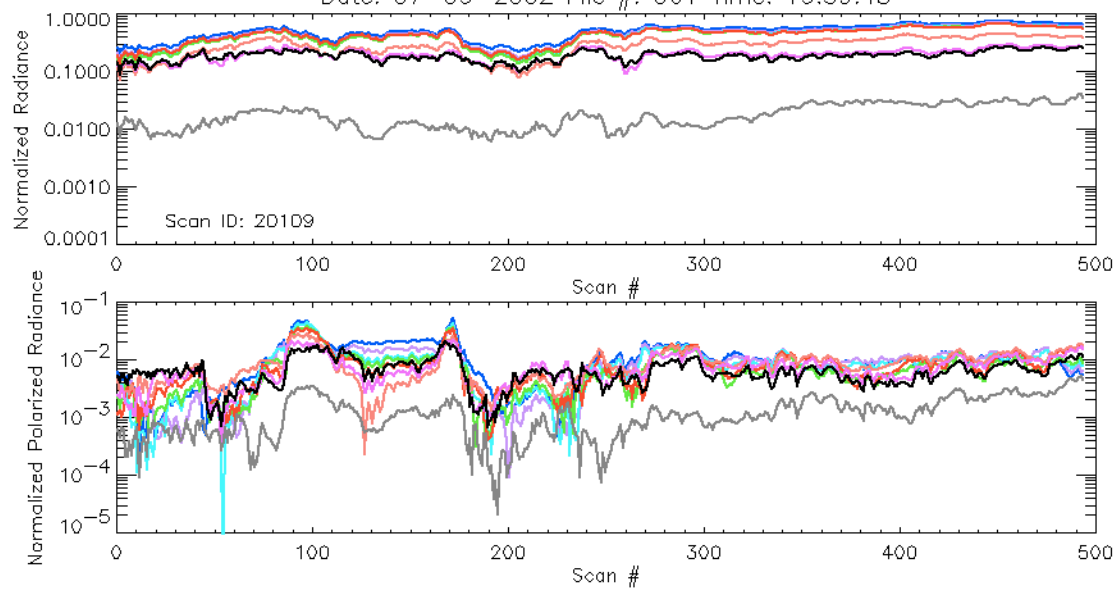


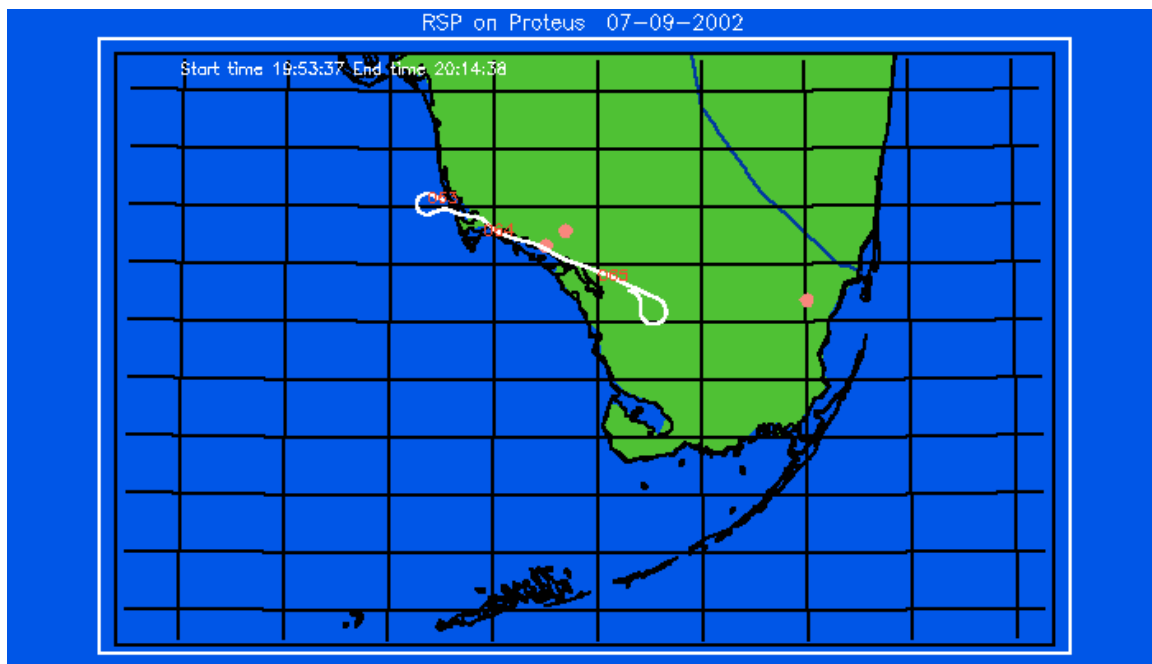
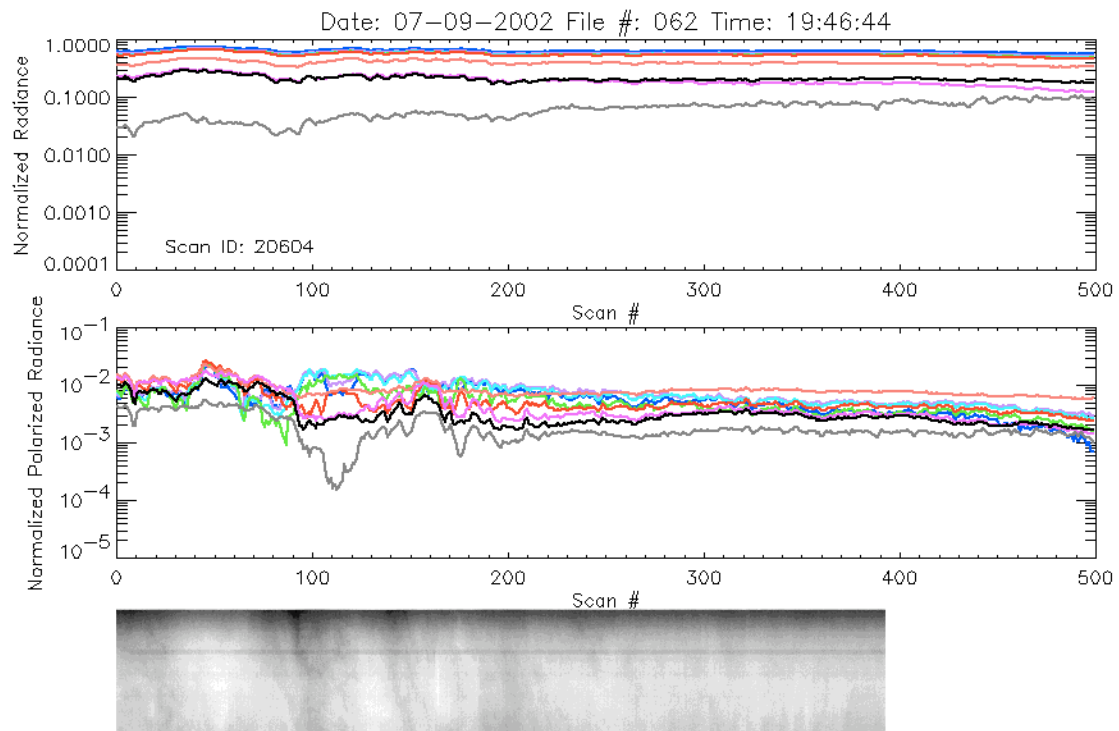


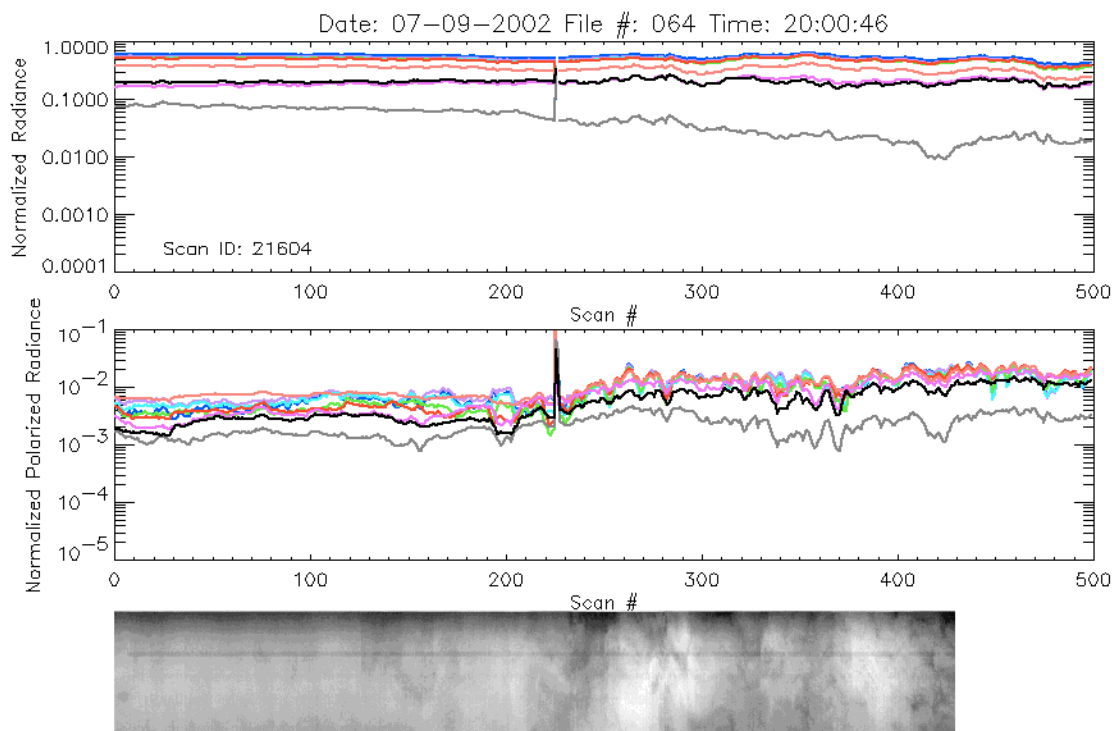
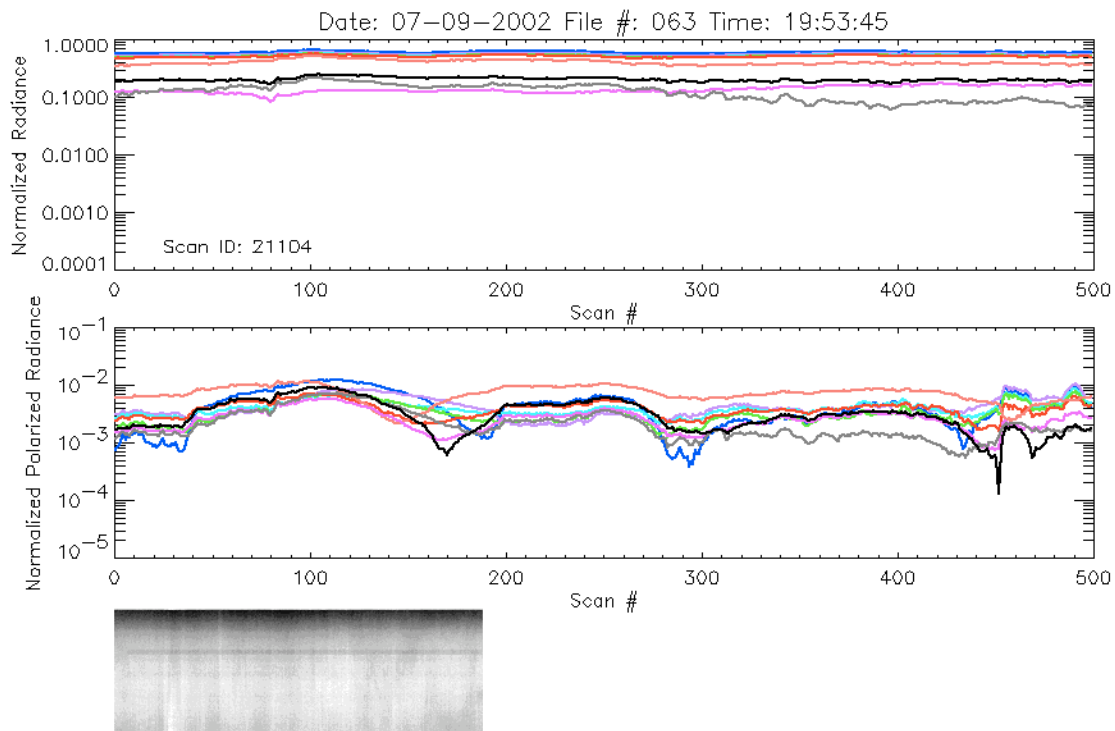
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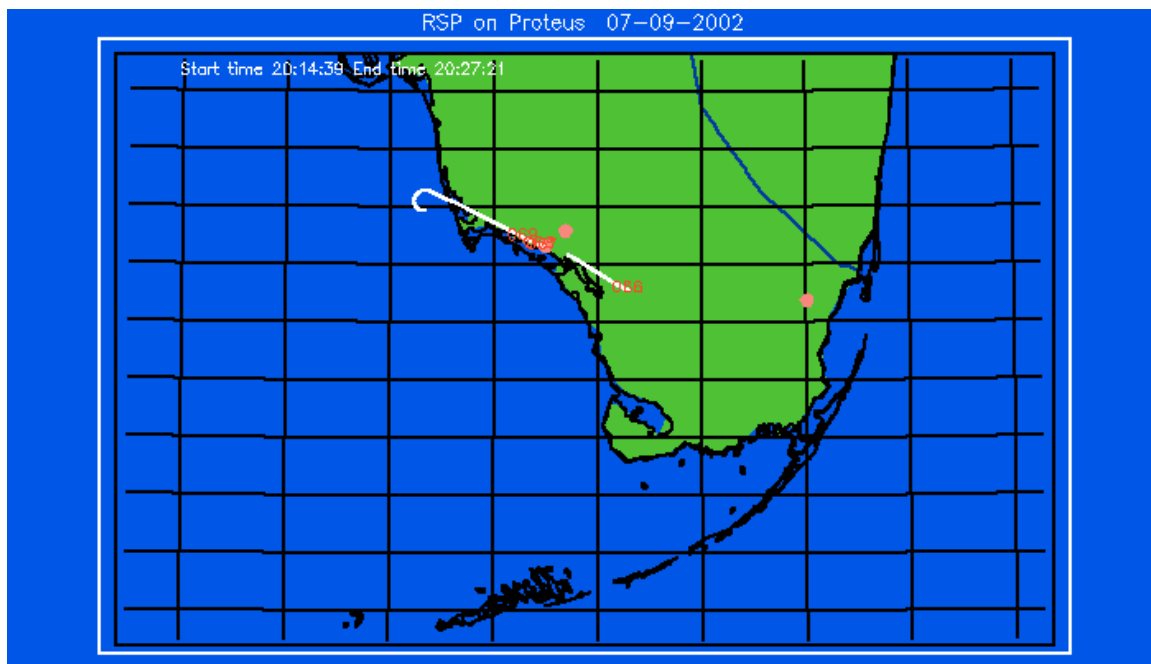
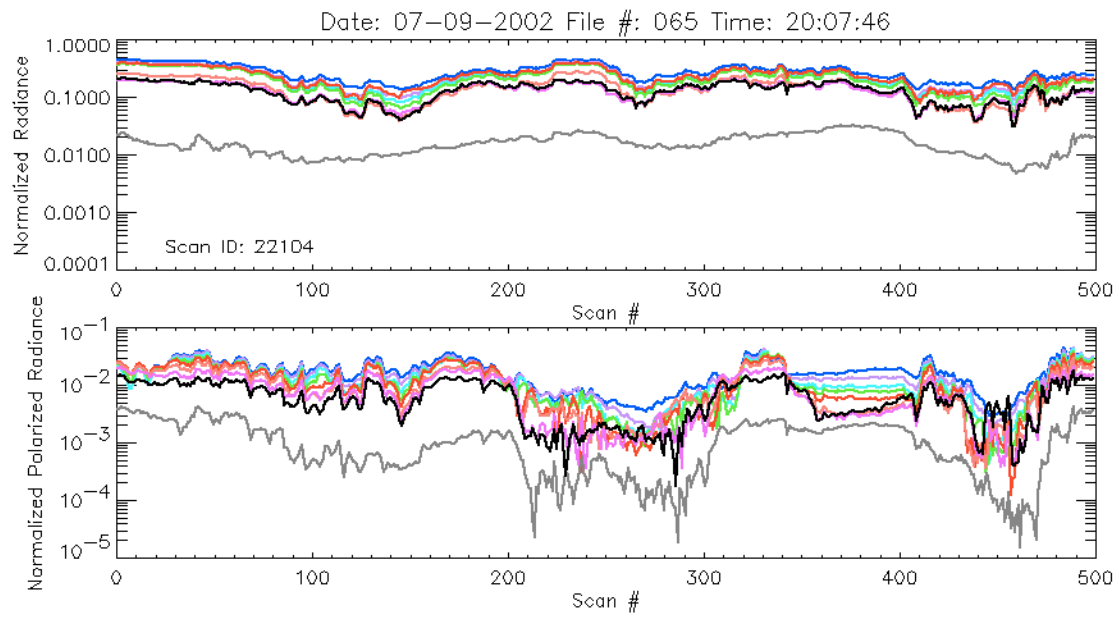


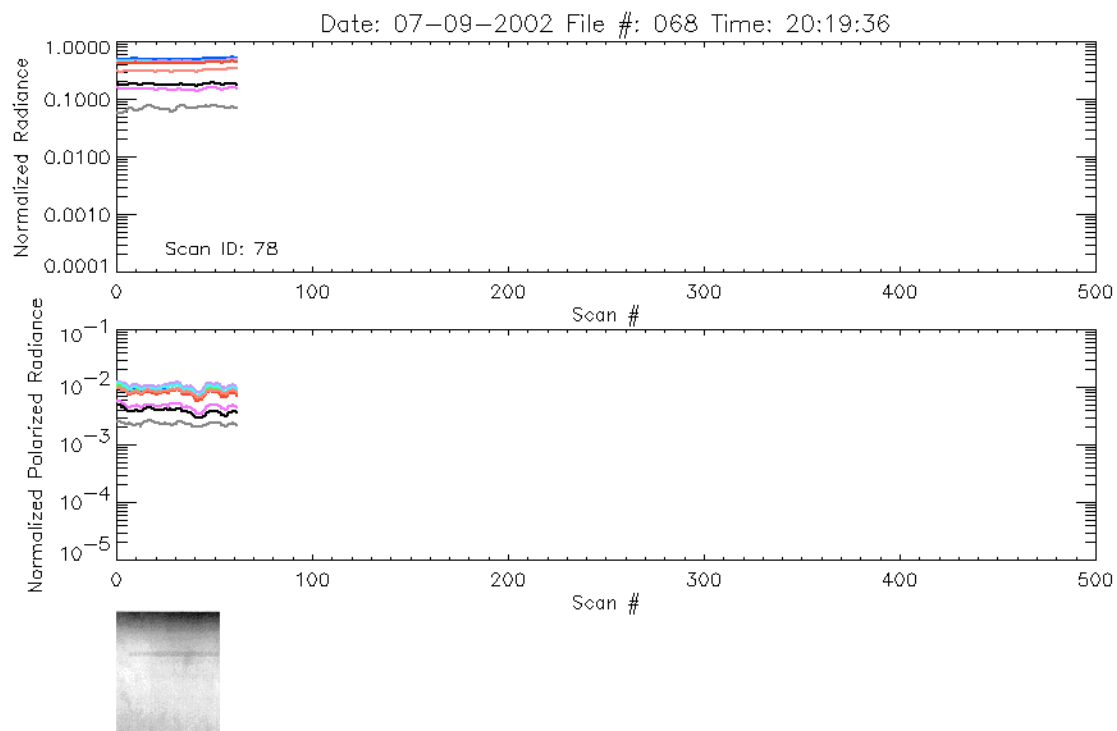
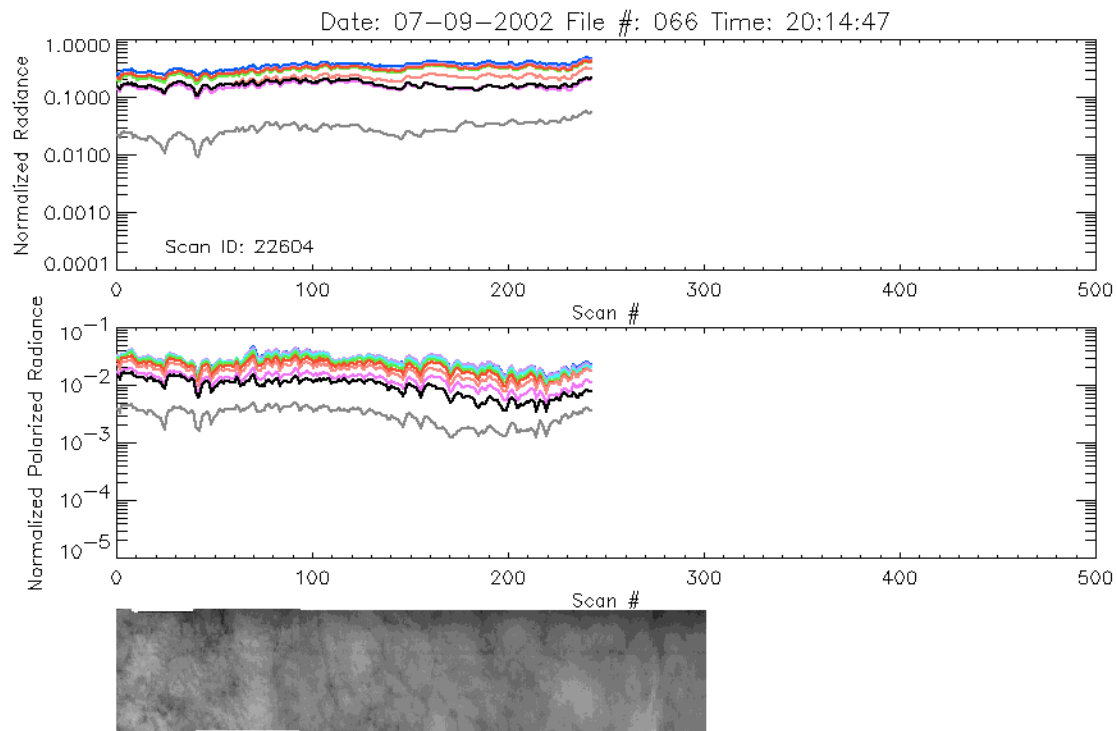
Date: 07-09-2002 File #: 061 Time: 19:39:48

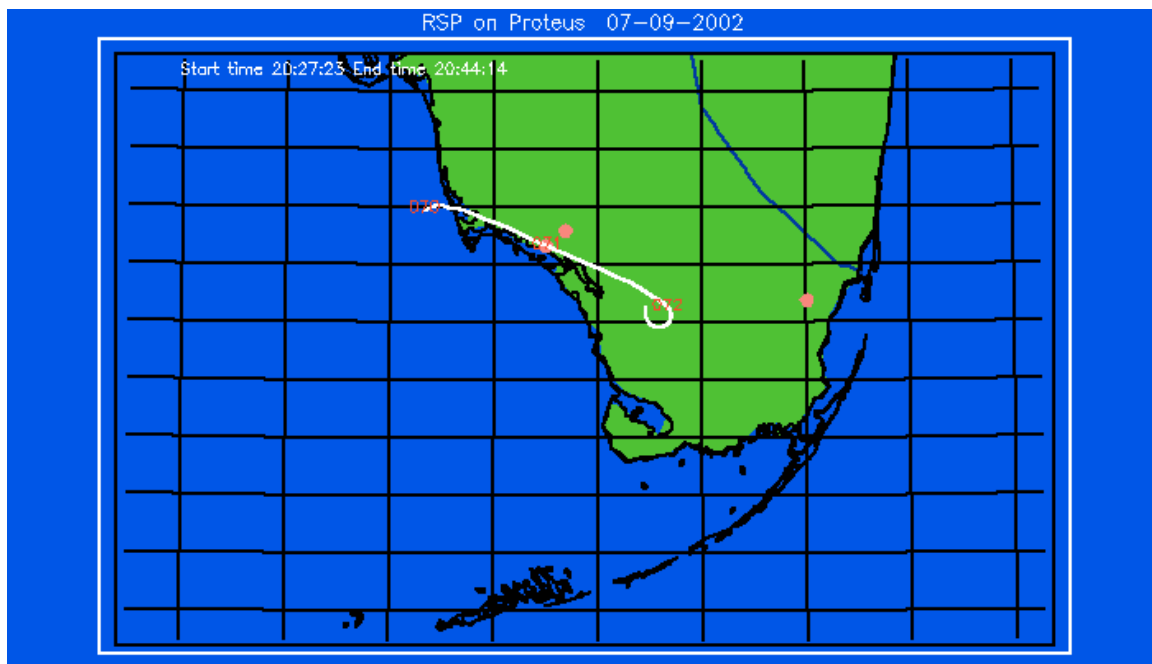
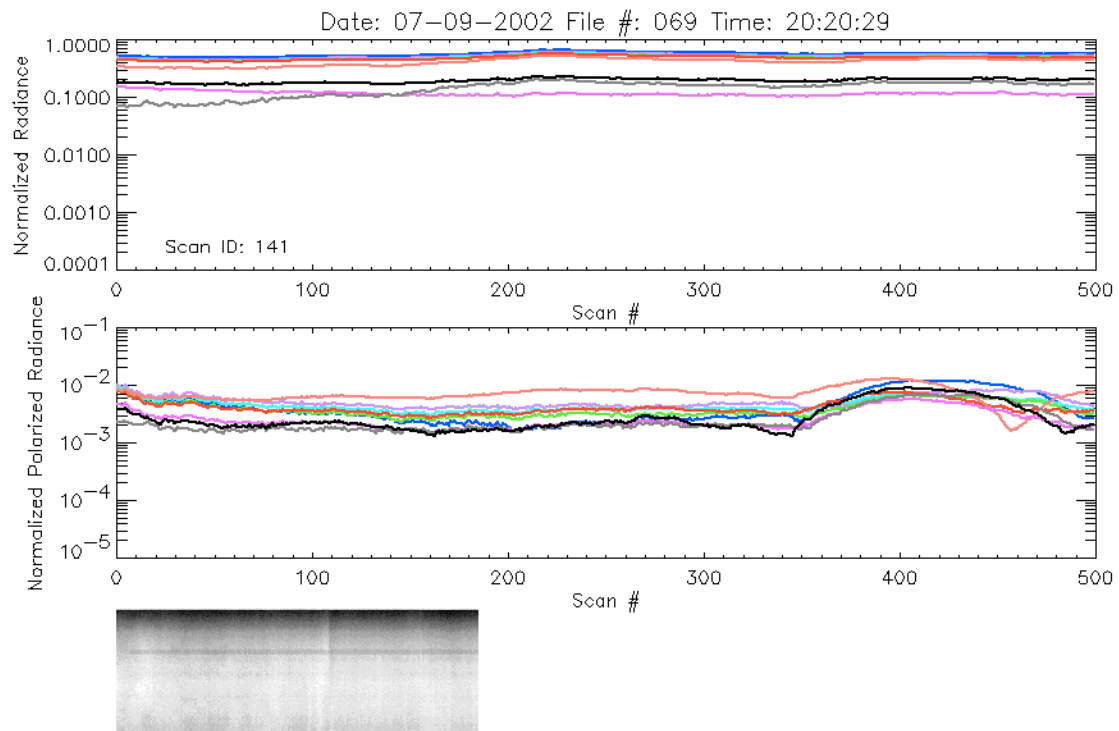


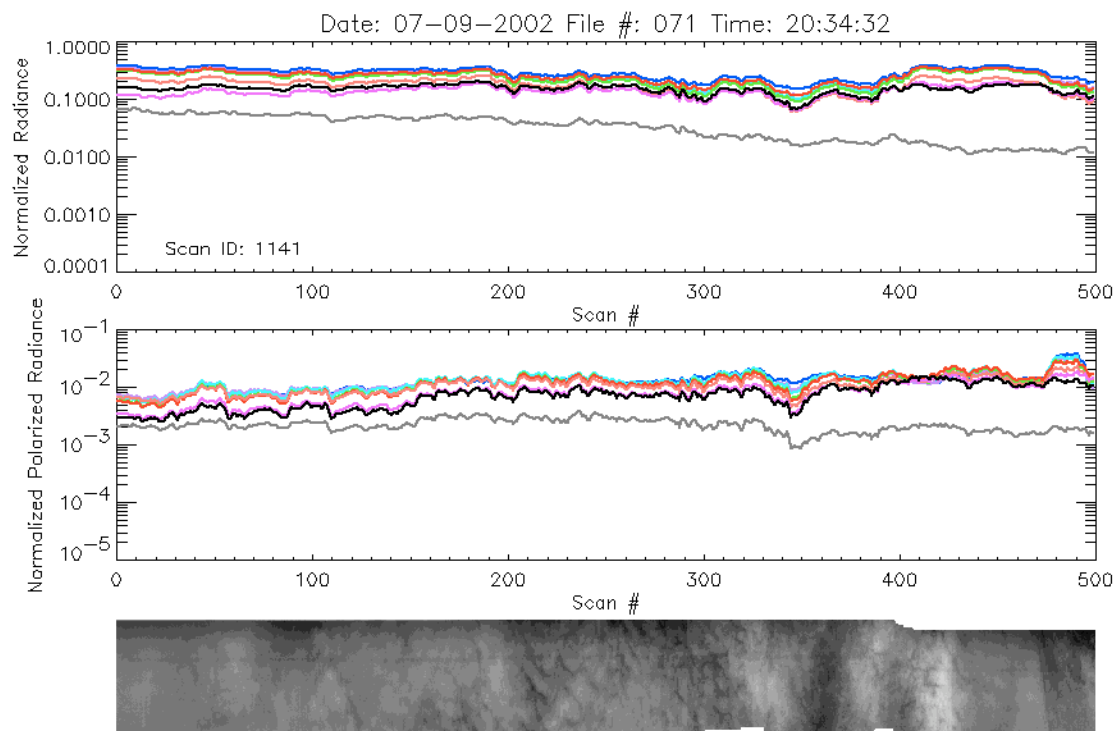
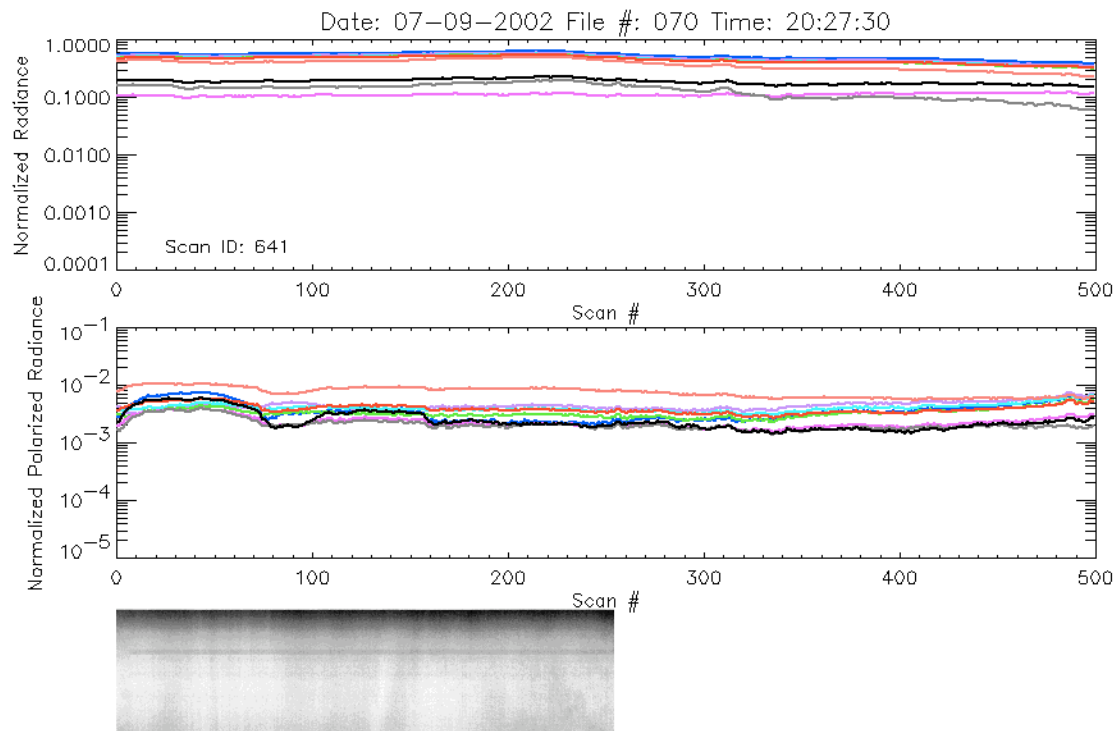


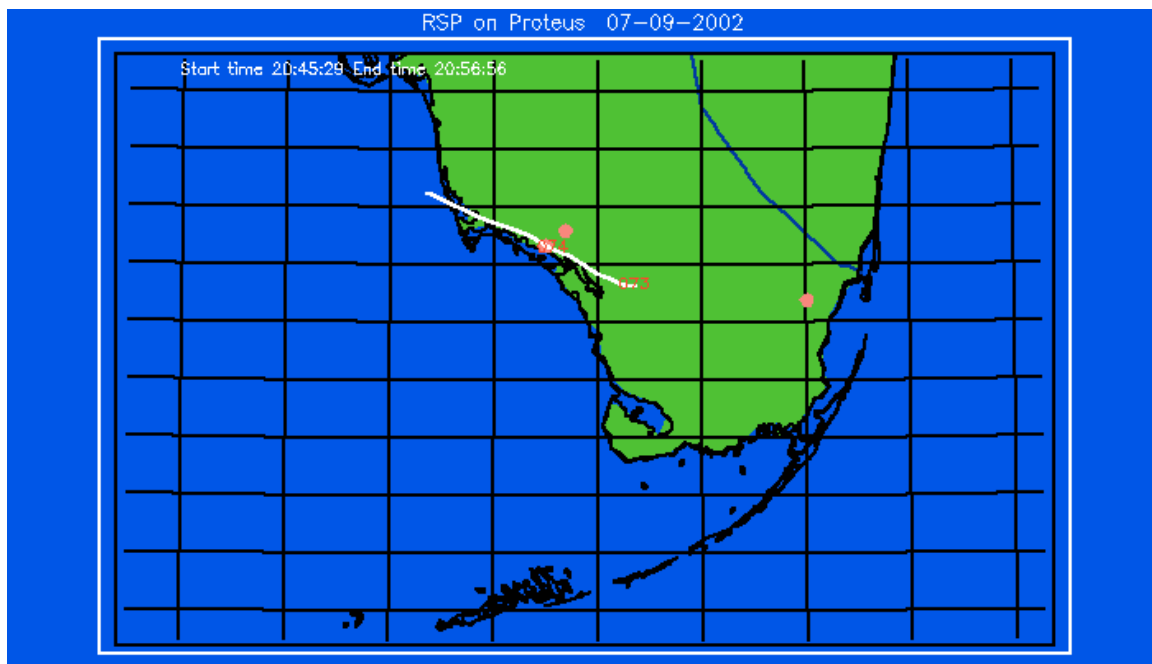
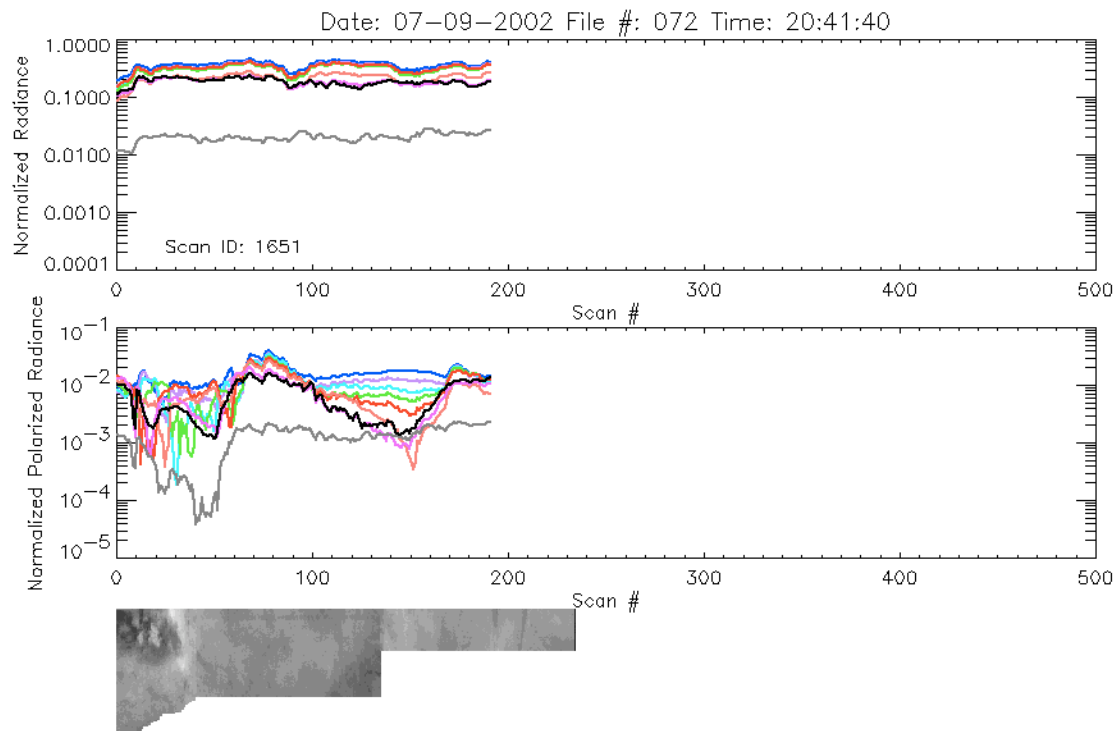


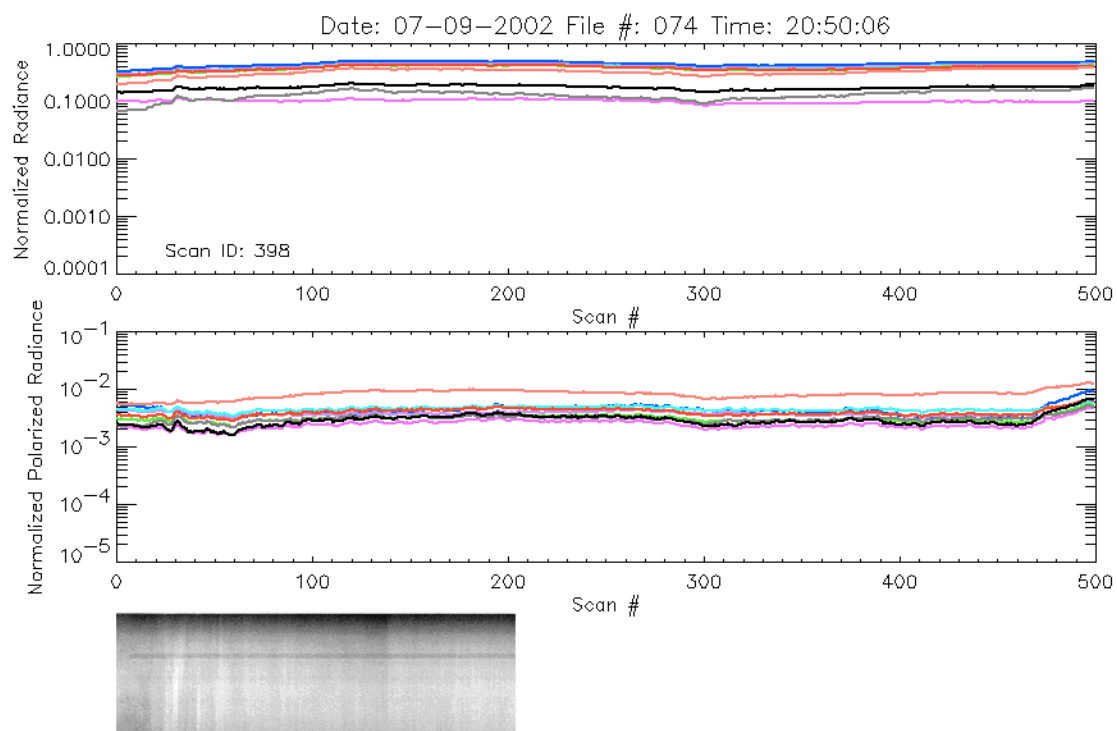
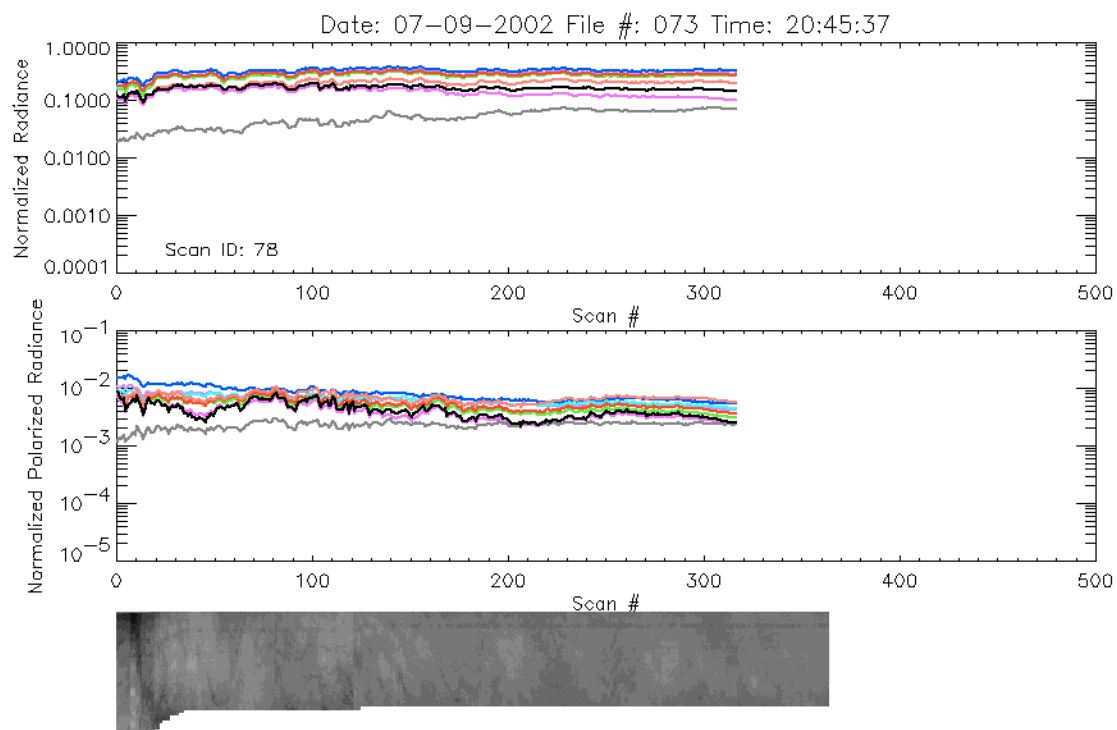




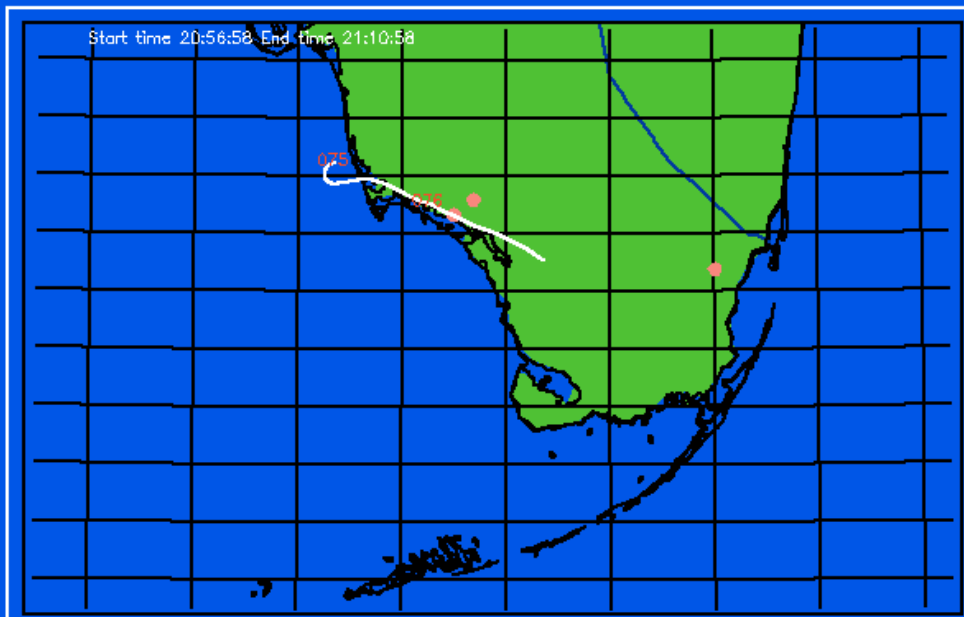




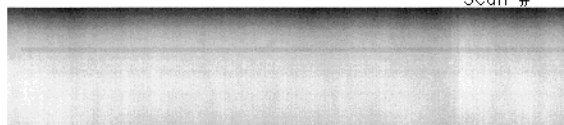
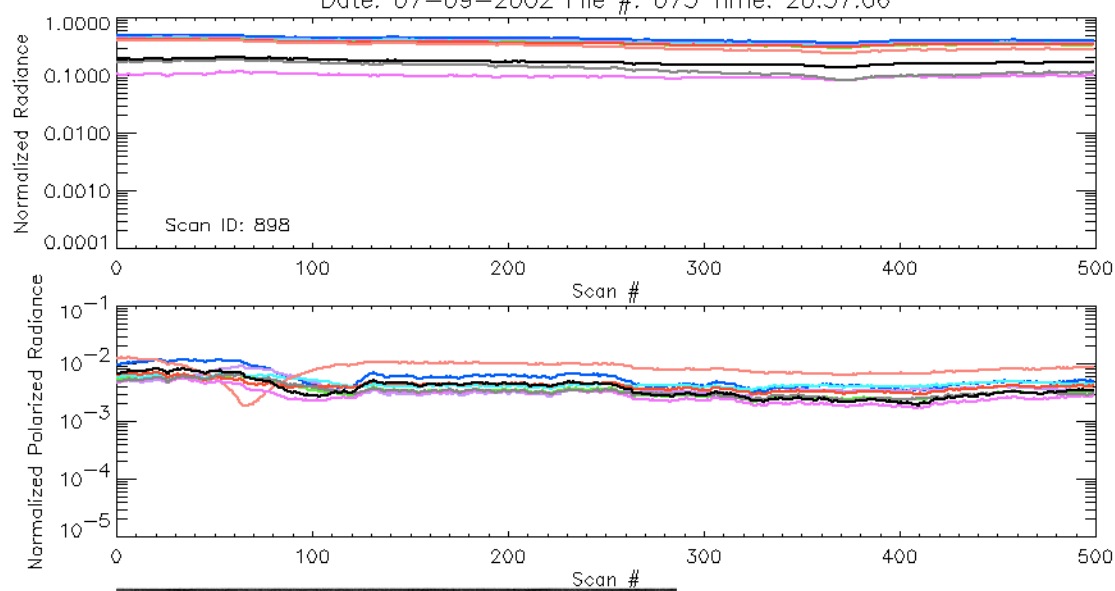


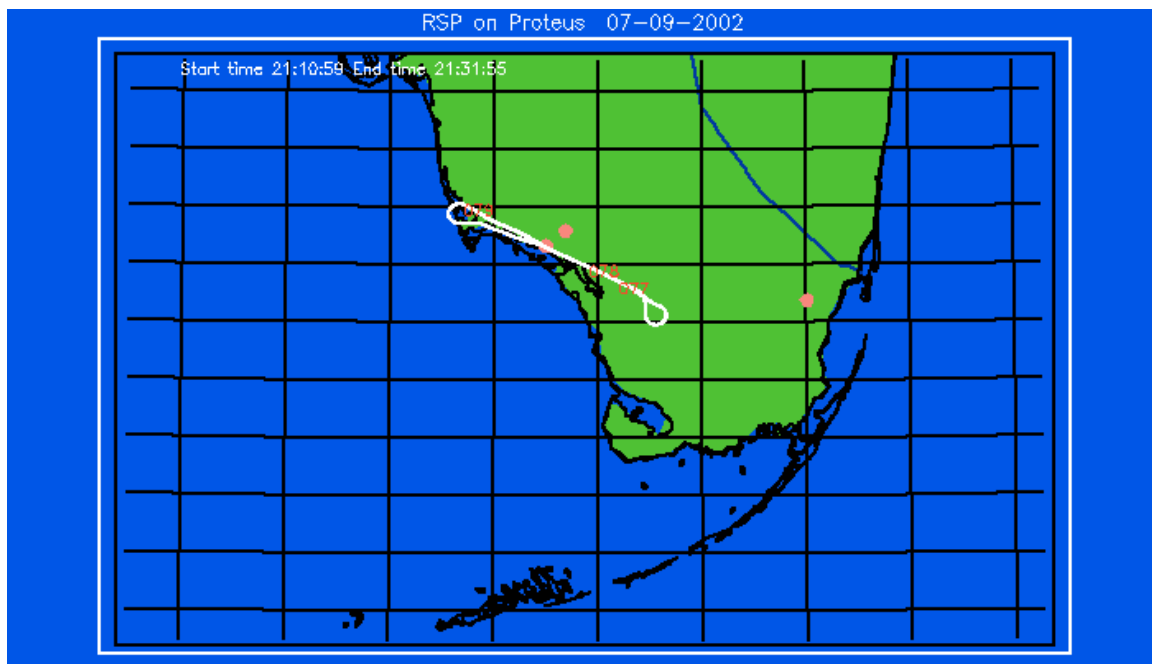
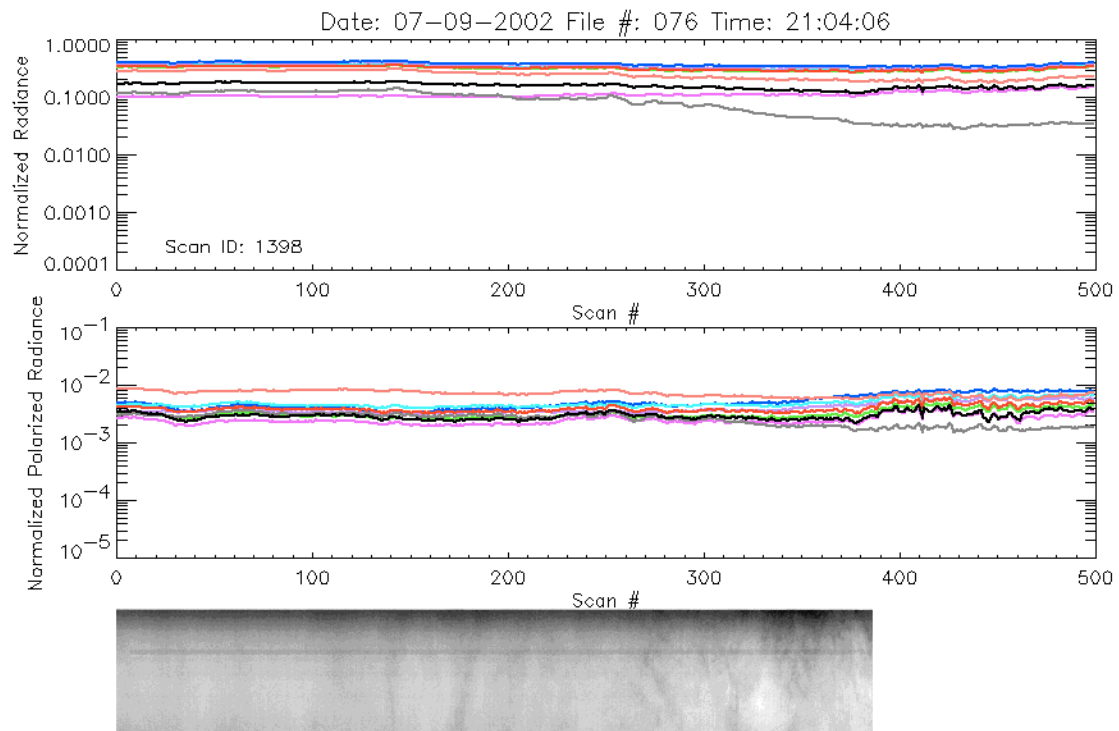


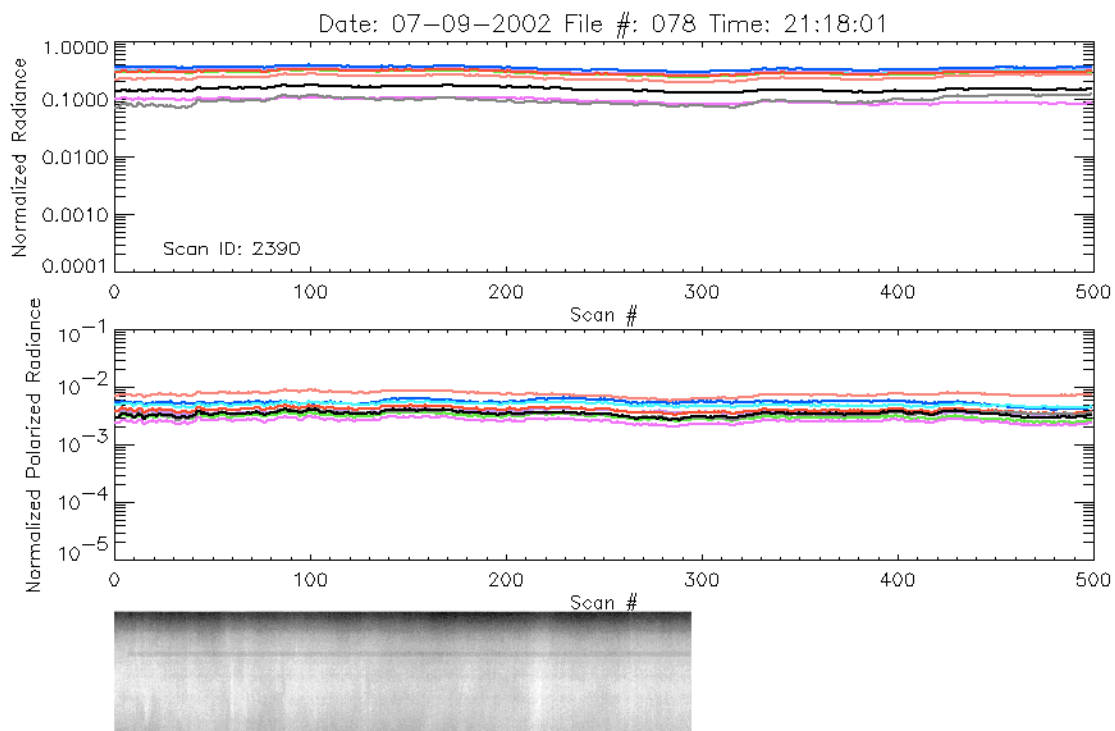
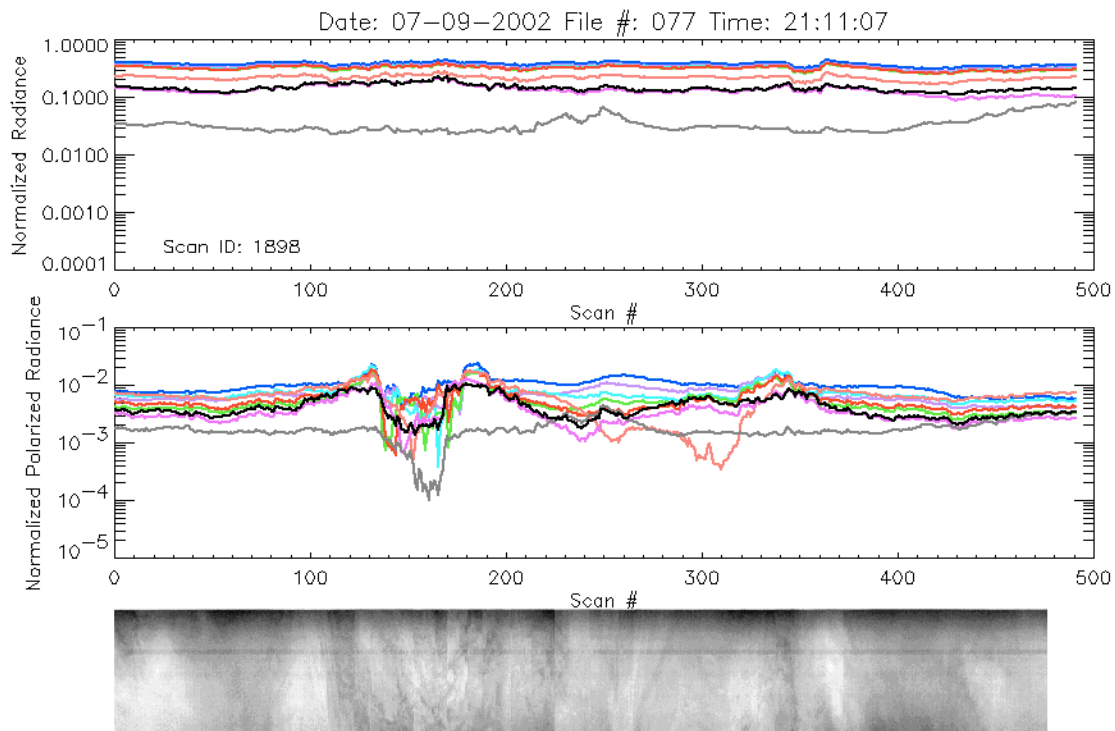
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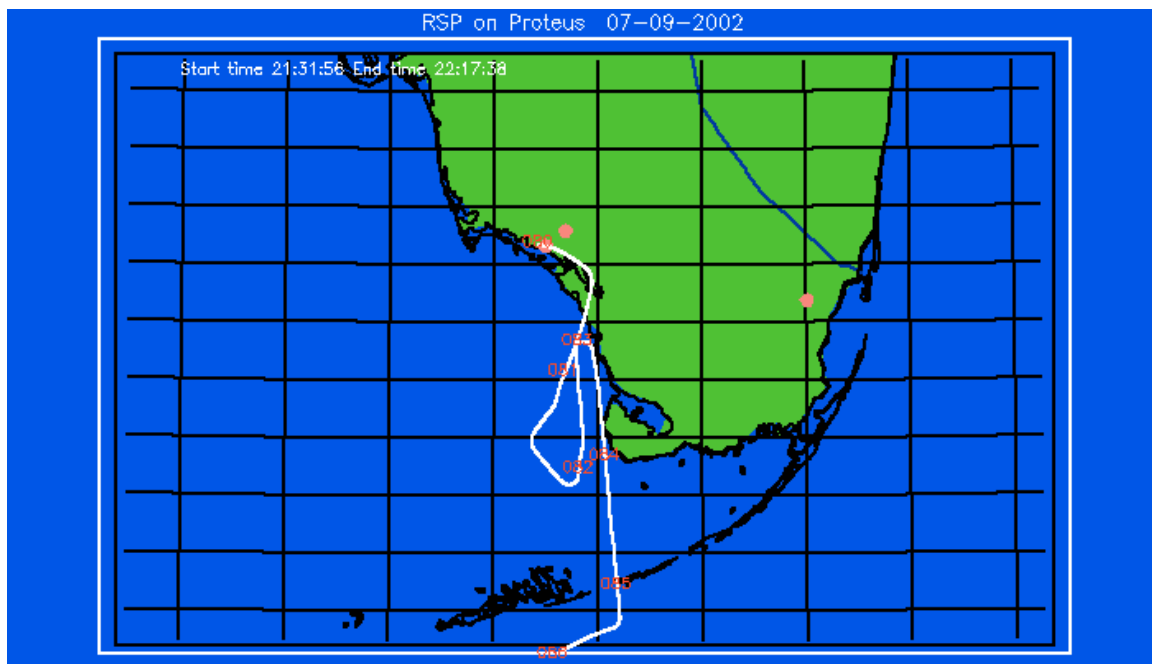
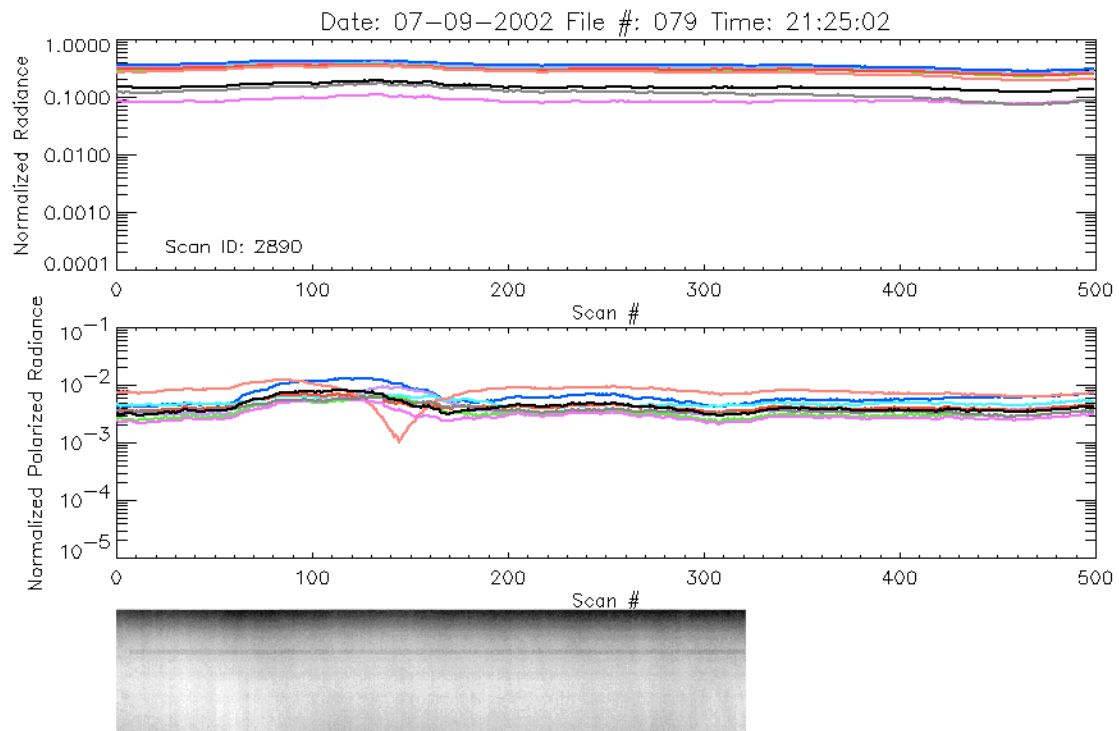


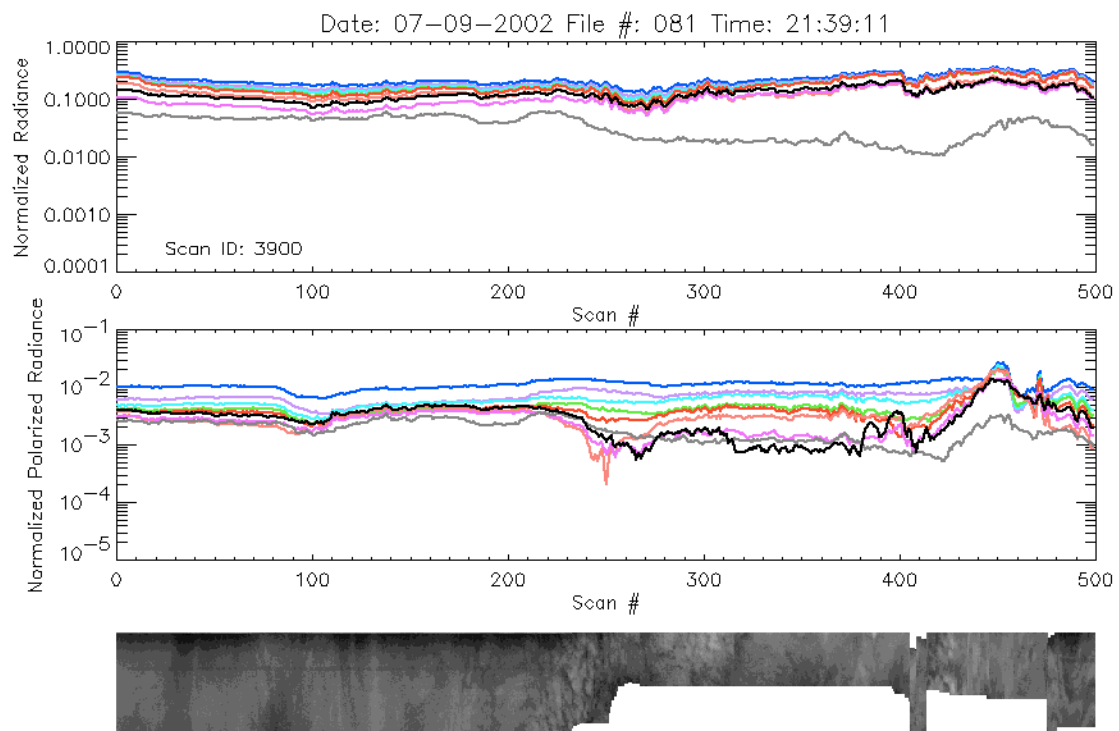
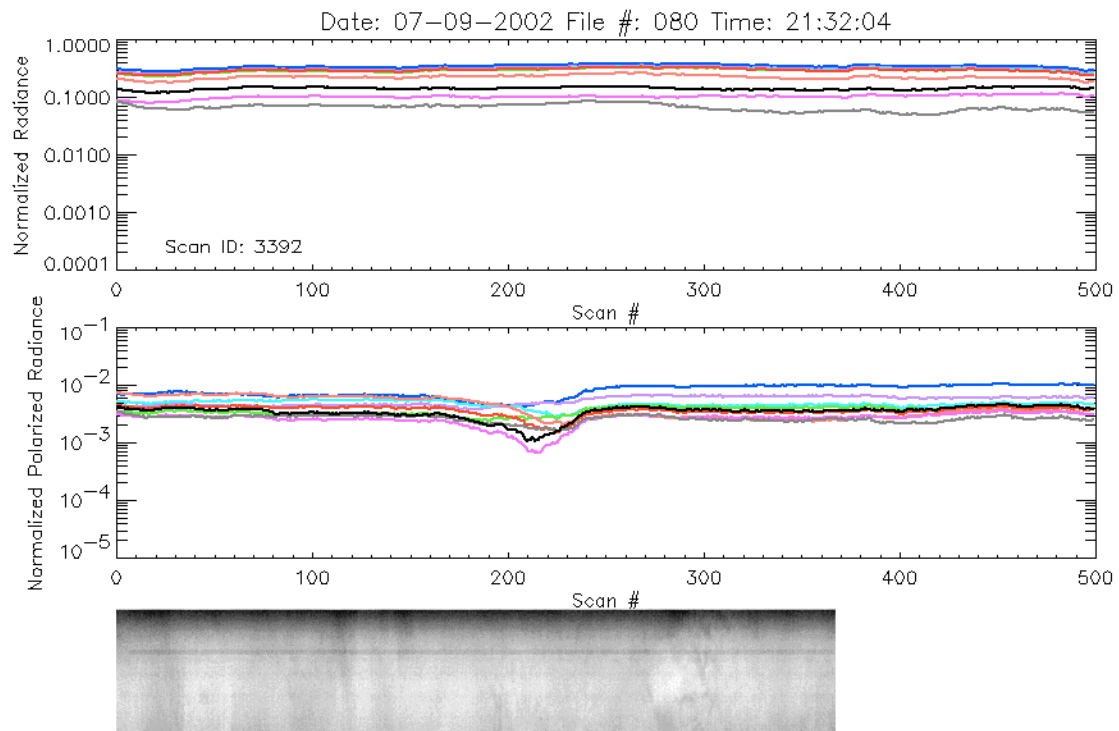
Date: 07-09-2002 File #: 075 Time: 20:57:06

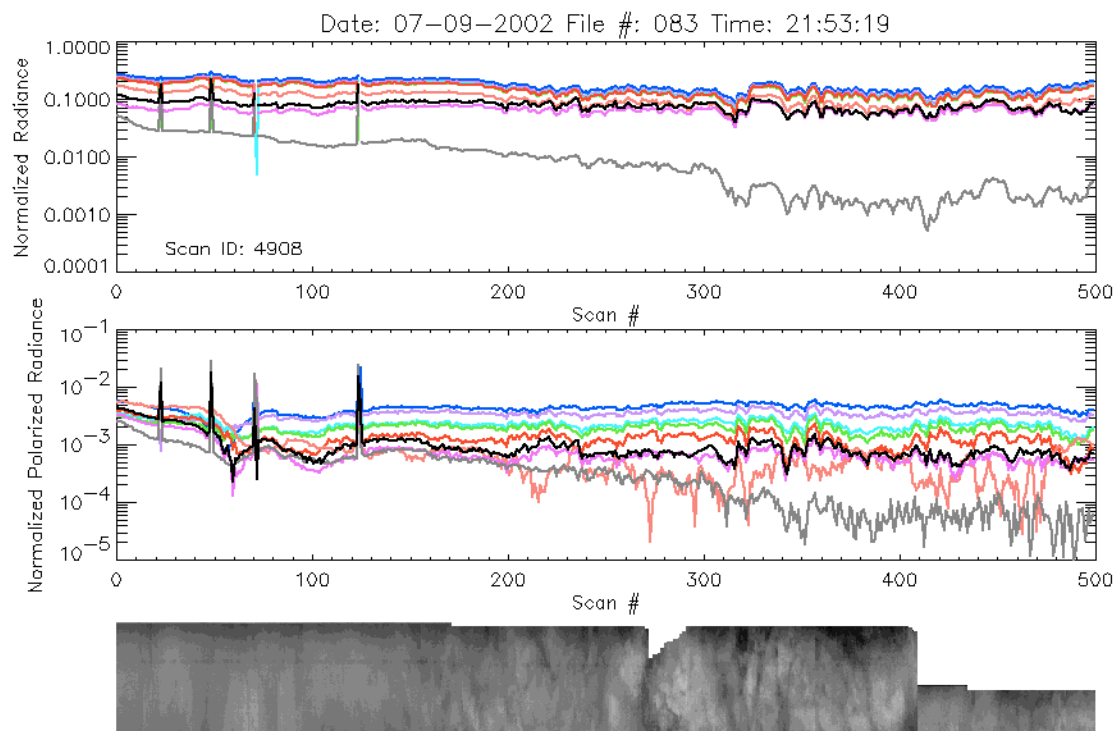
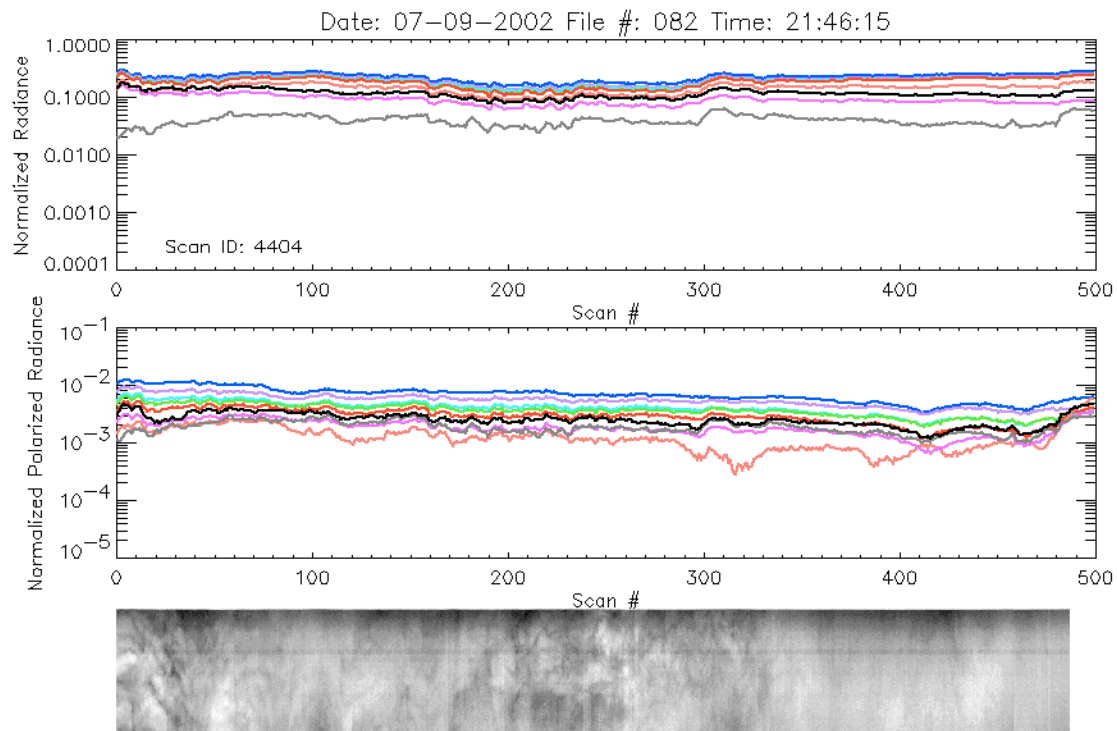


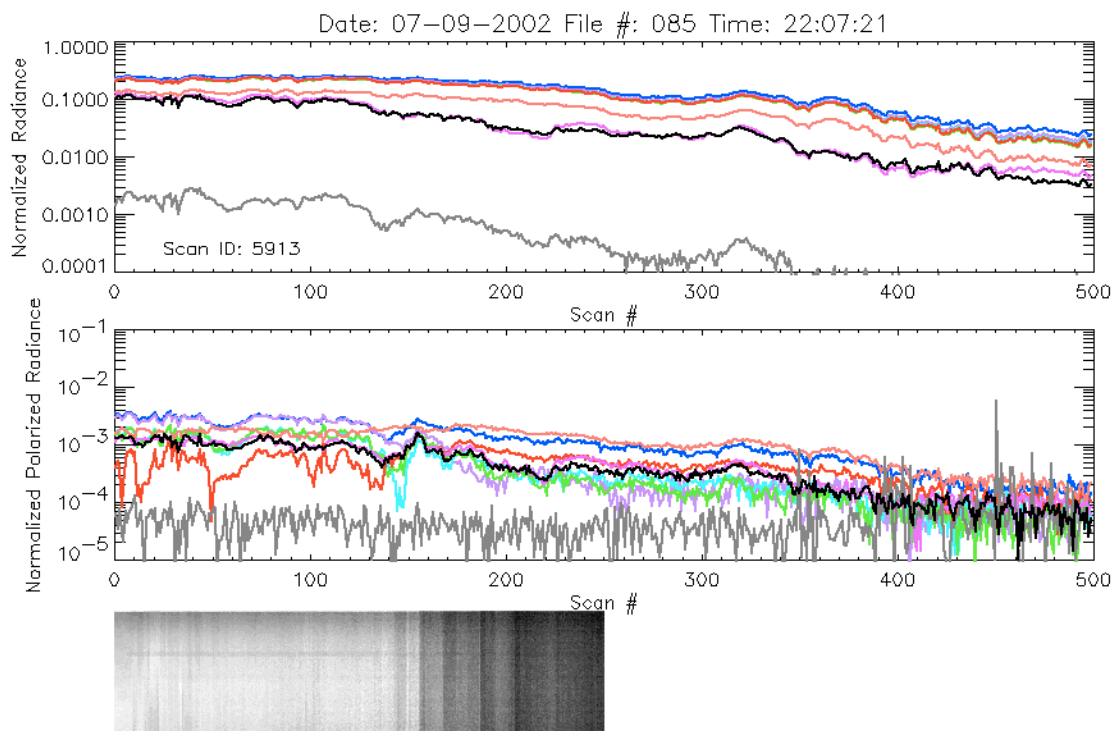
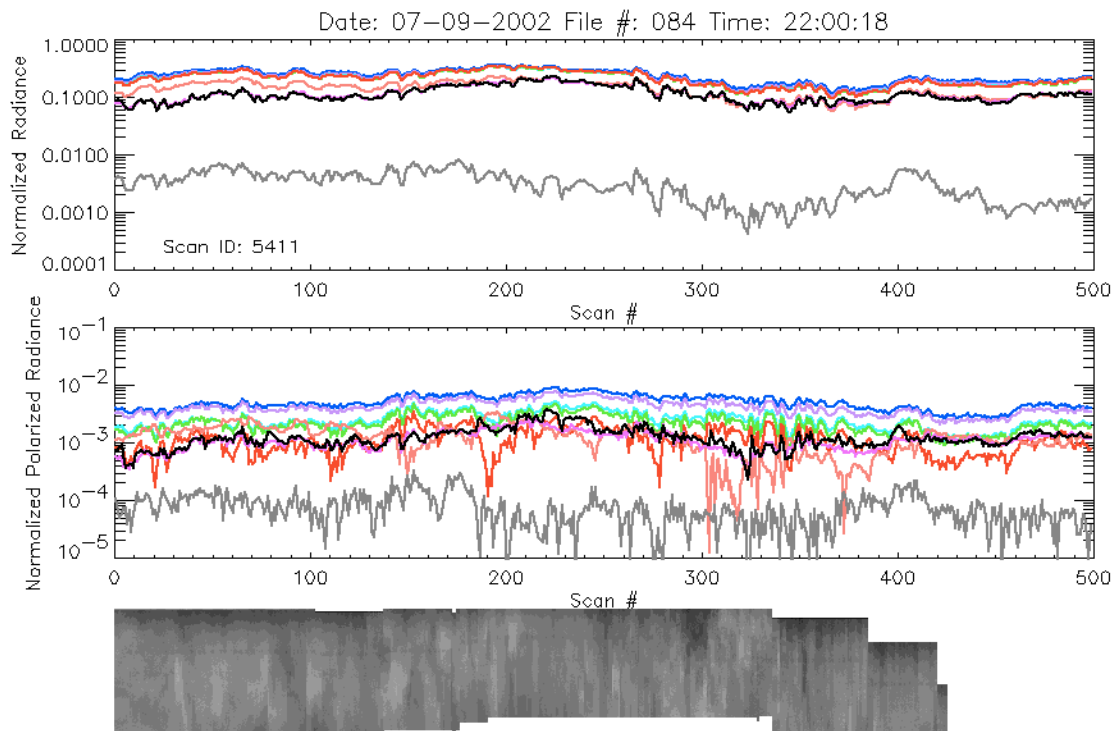












Date: 07-09-2002 File #: 086 Time: 22:14:23

